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JOURNAL
OF THE
ASIATIC SOCIETY
OF
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BENGAL.

EDITED BY
THE SECRETARY AND SUB-SECRETARY.

VOL. XII.
PART I.—JANUARY TO JUNE, 1843.
NEW SERIES.

"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society, in Calcutta; it will languish, if such communications shall be long intermitted; and will die away if they shall entirely cease."—SIR WM. JONES.

CALCUTTA :
BISHOP'S COLLEGE PRESS.
1843.

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JOURNAL
OF THE
ASIATIC SOCIETY.

Extract from Note Book regarding the Genus Paussus. By Capt. W. J. E. BOYES, 6th Light Cavalry, Assistant to the Commissioner Kemaon and Gurwhal, with four Plates.

[We have, from press of matter and other causes, been hitherto unable to do justice to Capt. Boyes' valuable and interesting communication: not the last we hope from his pen on a subject so little known, and of such boundless extent as Indian Entomology; and those who know the difficulties attending the creditable execution of delicate plates by native artists, will we trust, as well as the author, make due allowances for our anxiety that his beautiful labours should not be marred in our hands.—EDS.]

Having observed that the genus *Paussus* among the Coleopterous Insects, has been placed with the *Tetrameræ* in every work on Entomology it has hitherto been my fortune to peruse, I am induced to forward to you the accompanying extracts from a note book which I have kept some time past, in hopes that the observations therein cited, may induce others more competent than myself to observe, and perhaps assign what I conceive might be a fitter place to the above-mentioned Genus.

Stark in his *Natural History*, correctly states, as far as I can vouch from my own experience, that the number of joints in the tarsus of the *Paussus* is five; which circumstance alone, should, I imagine, have proved a sufficient reason, for the removal of this Genus from the *Tetramerous* to the *Pentamerous* section of *Coleopteræ*; but as it will be observed from the following notes, that in addition to its general form, which in outward appearance approximates to many of the *Carabici*, that it is also, similarly with several of the latter genus,

endowed with the faculty of crepitation, attended with the same results observable in many of these, their removal may (I think) well be warranted from the place they now hold to somewhere in the vicinity of *Aptinus* or *Brachinus*.

Regarding their form, it may be noticed, that the head is generally narrower than the thorax, or at most of the same width, eyes prominent, mostly reniform, sometimes ovaliform or gibbous; the body when viewed from above appears oblong, with the elytra either of one breadth throughout, or narrowed anteriorly, depressed and truncated posteriorly in most species; those which have the elytra of a uniform breadth, curved or sub-cylindrical above, present a rounded emargination to the wing cases at their latter extremities. The palpi though small, are salient, the labial ones being subulate; those of the maxillaries appear composed of four joints, of which the first is thicker than the rest; they differ from the labials in being arched from about midway, turning inwards until their apices are so approximated, that they appear to meet.

The abdomen is oblong, oval and tumid at the posterior extremity, sometimes of one breadth throughout, but more generally narrowed anteriorly. The femur in each fore-leg presents in many species a longitudinal and rather deep sulcus, which when the leg is contracted admits the tibia. The tarsus is composed of five joints, of which the first, though very minute and nearly concealed beneath the spine of the tibia, is still very distinguishable with a magnifier, particularly when the insect is in motion. The thorax resembles the form which obtains in that part of most of the *Carabici*, being generally cordiform, truncated posteriorly, with margins produced, though some species have it angulated in front and irregular.

In flight, the *Paussi* are exceedingly easy and agile, the lower wing when expanded being in comparison to the size of the insect of large dimensions, and when they alight, the movement is so sudden, and the elytra are closed so instantaneously over the lower wings, that they appear as having dropped down to the spot on which they rest, and where they generally remain several seconds previous to again attempting to move; facts which I have also remarked as practised by many *Carabici*. Its walk, however, entirely differs from that of this last mentioned genus, for instead of being nimble and occasionally

rapid, I have never seen it moving but in a slow and sedate manner, at which time the antennæ are extended to the front of the head, and to these is occasionally given an upward vibratory motion. What should bring these insects in nearer conjunction with the genus *Carabus* is the curious fact, that on being seized they emit from the anus a very acrid liquid, accompanied by an explosion, and attended with a strong scent resembling that produced by *Brachini*, and other allied genera when similarly treated; and although in minuter quantities, it is abundantly sufficient to produce a very sensible heat, and the crepitation may be distinctly heard and felt. Wherever the skin has been subjected to its action, discoloration immediately ensues of a reddish brown color, which soon after turns to a brownish black, resembling the stain produced by the touch of caustic, and which remains permanently fixed for many days after.

The explosion is occasionally repeated three or four times successively, at which periods a vapor may be observed to accompany each crepitation, attended with a strong, and very penetrating odour, something like that of nitric acid.

In one species I possess, the last segment of the abdomen is provided with two large bundles of hairs, resembling densely set brushes, which under the microscope are objects well worthy of examination; each hair appears like a fibre of golden-colored glass, and so closely are they arranged, that it is only on being disturbed that their true character can be discerned; yet notwithstanding the aid afforded by the movement, the hairs composing this curious appendage are only so far separable as to appear like a wetted painting brush. In another insect of the same genus, and probably differing only from the above-mentioned one in sex, the abdomen beneath, near the penultimate segment, is provided with two curved spines in addition to the hairy protuberance already noted. In a third, the posterior end of each elytra gives support to a moveable incurved spine, projecting over the last segment of the abdomen, and which when submitted to the microscope, appears strongly acuminate, and somewhat in the form of the extremity of a scorpion's sting.

In addition to these curious organs, several species are provided near the exterior margin of the elytra, at the posterior extremity, with a small papillaceous follicle, giving cover to an elongated appendage of

the same description, which is attached to the upper exterior margin of the abdomen, and which by the aid of a pin's point may be lifted up, and in a slight degree outspread, but collapsing immediately the impediment is removed. It would be difficult to assign reasons for the different addenda in the form of these insects, and observation alone can afford a clue to their uses, but that they are objects of extreme utility, and perhaps absolutely necessary in their economy as is easily to be conceived. Possibly the last mentioned appendages may be a source of further protection granted these curious insects, which are brought into play as danger may threaten; for in one I captured on the night of the 30th ultimo, and which flew into the lights on the table, I observed that when placed under the microscope, if these papillæ were touched, that they possessed the power of discharging a yellowish milky liquid, resembling pus in consistency, and which speedily overspread the lower part of the elytron, granulating into small egg-shaped grains. On repeating the irritation the same results occurred, and in order to be certain of the fact, I tried each elytron twice with the same effect. In my first trial the emission was so sudden and took me so much by surprise, that viewing the insect through the medium of the microscope, I fancied it sufficiently near to be injurious, and incontinently let it fall. I should mention, that in all these trials, each emission was accompanied with a faint acidulous odour. Although the appearance of each discharge obtained on the elytron, I am inclined to believe, that properly speaking, it issued from the foliaceous appendage on the abdomen, and that it spread over the wing case in consequence of the peculiar shape of the shards at the part which overlaps the extremity of the above-mentioned organ, but my experiments were unfortunately closed, ere I could satisfy my doubts, as my servant in removing the microscope to another table contrived to lose my specimen; since which I have been unsuccessful in making a recapture. At one time previous to my loss, I was inclined to believe that a minute perforation existed in the exterior angle of each elytron, with margins sufficiently elastic to allow the liquid to pass through, closing immediately after the emission, but I could not bring myself to any certainty on this point.

After capture, the *Paussus* may be made to lose its powers of crepitation by too much irritation, at which time it will resort to a very

common ruse practised by many insects, and simulate death, contracting all its legs towards, but not close to, the abdomen, in which position it will remain so long as it continues to be disturbed. This circumstance, as far as I have hitherto noticed, is not a common practice among the Carabici, though very generally adopted by almost all the Heteromerae.

I may here observe, that many of the latter section of Coleopterae possess the power of forcing out a very caustic liquid, which exudes from the pores of the abdomen, and at the joints between the femur and tibia of each leg, a practice commonly resorted to when they are being seized. This liquid stains the skin wherever it happens to touch, to a purplish black, remaining on the part for many days after; and so corrosive is its nature, that it is only when the epidermis peels off, that the stain is removed. If plunged in hot water, a strong emission takes place from the anus, and the water is discolored to a purple, or ink black, according to the number of insects used, or requiring to be killed. In a similar treatment of a Paussus, a crepitation may be heard, and the abdomen becomes greatly distended, probably by rarefaction of air contained in vessels which give their assistance in its explosive powers, and the part retains the inflated appearance until a small perforation has been made in it with a needle's point, or such like instrument, which allowing the escape of the confined air, enables the abdomen to contract to its natural size. The same fact is peculiarly remarkable in many species of *Brachinus*.

Regarding the habits of the Paussus, my experience can give little or no aid, for of the seven species which I possess, one was captured on a heap of manure while searching for *Slaptryini* at Mhow in Malwa; a second came accidentally into my net while sweeping in some high grass at Sultanpore, Benares; three species were taken at night, generally between the hours of nine and ten P. M., having been attracted by the light on the table; another was rescued from the clutches of a small black ant, which circumstance I notice merely, because a belief exists, that the Paussi inhabit ant-hills, and the last was found crawling up the wall of my bathing room, from which the only conclusion I can arrive at is, that they are most frequently on the wing at a late hour of the night, and as noted in my memoranda, generally after rain. I now proceed to give the extracts alluded to, just as they stand, together

with drawings, from which the accompanying sketches have been taken. The originals being colored, I have preferred doing the copies in outline, that a lithograph might be the more readily and correctly produced, should this article be considered worthy of publication. The original drawings have in all instances been taken from the living insect, and which I shall be happy to forward if required. In the two first, Nos. 1 and 2, the minutiae were not alluded to, and being at some distance from my collection, I regret I am at present unable to give any delineations of their forms; latterly, having taken greater interest in the genus, more has been done, and it now only remains with me to assure you, that in the facts and experiments cited, I have always leaned to the doubtful side, and I therefore trust, that the errors which have crept in, (either as regarding the characterizing of my specimens, or the conclusions I may have arrived at,) will receive the indulgence an unpractised hand may merit.

No. 1. Fig. 1.—Mhow, July 19, 1839.—Genus *Paussus*, length 7-20th of an inch, body brown, deeper in the middle of the elytra. Antennæ of two joints, of which the last is large, cuspiform, and having dentated edges with a scallop between each tooth, apex rounded exteriorly, basal angle produced, acuminate and forming a tooth at the end of the superior margins. Lower portions carinated, front view resembling the bows of a boat, head light brown, rounded posteriorly, emarginated in front, sunk nearly to the thorax, and bearing a minute depression in the centre of its upper part in the form of a diminutive horse-shoe. Eyes round when viewed from above, reniform when seen in flank. Thorax sub-octagonal, with rounded margins anteriorly, angulated and scolloped at the corners posteriorly, bisected in its centre, the posterior portion bearing a strongly produced emargination, which crosses transversely in the form of a bracket. Tarsi simple, cylindrical, the last longest, the first very small, almost invisible, of five joints in each leg, all of which are furnished with hairs beneath. Elytra truncated posteriorly, of a uniform width throughout, slightly depressed, body oblong, flattened, palpi conical, not very salient, maxillary ones tumid at base and over-arching the labials. Taken on a heap of manure at Plassie near Mhow.

Note.—This is the first insect of the kind I have seen at this place, and differs very much from the one I captured at Nusseerabad, which,

I included in the collection given to Dr. J.'s lady, since taken to Edinburgh.

No. 2, Fig 2.—*Mhow, July 27, 1839.*—Genus *Paussus*, length 6-20th of an inch, body brown, rather deeper in color near the sutural margin of the elytra. Antumæ of two joints, the last having an elongated pedicle resembling an intermediate joint, the club is pear-shaped when viewed from above, irregular if seen in flank, edges compressed, forming a carina which is produced into a small tooth near the basal angle. Head has the front slightly emarginated in front and rounded, narrower than the thorax from which it is exerted, eye rather large for the insect, rounded when seen from above, reniform when viewed on the side. Thorax cordiform, broadly truncated posteriorly, having a transverse sinus crossing its centre. Elytra narrowed anteriorly, rounded on the posterior external margin, squared on the internal one, abdomen tumid and very like many of the *Carabici* I have been lately taking. Tarsi of five joints, the first of the posterior tarsus scarcely discernible, unless the foot is put in motion; last joint longest, all of them cylindrical or ob-conical, and furnished with a few hairs beneath.

Note.—This insect came into the lights on the table sometime after gunfire last night.

No. 3, Fig 3.—*Sultanpore, Benares, June 21, 1840.*—Genus *Paussus*, length 10-20th of an inch. Antennæ of two joints, the last of which is massive, spindle-shaped when seen from above, irregular when viewed at the side, upper margin produced, and forming a recurved tooth at its basal angle, at the side of each club. Near the base is a slight impression somewhat in the form of a cocked hat, three rather deep sulci cross the club near the centre, extending half way down each side. The head, thorax and antennæ, are a light reddish brown. The under-part of the body, together with the abdomen and legs, are of a dark brown, tarsi almost black. The elytra are black with a margin of sienna brown, or light chesnut, and are densely covered with silvery hairs, apparent when viewed through the microscope. Near the posterior external margin of each elytron, is a curious appendage I have not previously observed in these insects. The abdomen has its latter segments very broad, and appears distended. The thorax is cordiform, broadly truncated posteriorly, with the posterior external angles slightly produced and rounded, a deep sinus in the form of a bracket

appears to divide the thorax into two nearly equal portions. The head is almost triangular, with a rather deep excavation on the frontal margin; the posterior part of the head presents a strong emargination rising in an arch between the eyes, which last are large, prominent, rounded from above, reniform if seen at the side. Palpi elongated, conical, those of the maxillaries overarching the labial, approximated near their tips, and apparently of four joints, of which the first is by far the thickest, the last cuneiform. This *Paussus* with its congeners is surely misplaced, and erroneously classed with the *Tetrameræ*, for the joints in all the tarsi are visibly five, and may be readily distinguished with the naked eye.

Note.—It struck me that of the three I captured last night, one crepitated, or made an explosion similar to that produced by the *Brachini*, and most certainly while I now write my finger and thumb bear marks, as of caustic or something like it, though I assuredly have not used any thing of the kind for many months past. We have had very heavy rain for the last eight days; yesterday was the first fine day we have had since the rain set in, which may account for my great good fortune in capturing so many as three of these highly curious insects, all of which by the bye came in late, for it was near one A. M. before I got to bed.

Note Book.—*Sultanpore, Benares, June 22, 1840.*—Captured another *Paussus* similar to the three taken on the 21st instant, but it unfortunately fell into the oil of the lamp, and was killed before I could try its crepitating powers, which I more regret, as it is quite uncertain when I may again procure a specimen. I have already noticed that we have had very heavy rain for several days past, and insects both last night and on that of the 21st were more numerous than I ever remember to have seen before. A lamp I placed outside for the purpose of attracting them to its light, was after a minute or so, extinguished by the immense numbers which flitted about it, and to save the wanton destruction of life, I was compelled to cover the lamp with a wire shade at the expense of much light. As for myself, I could scarcely remain near the spot, though covered from head to foot with a black blanket; even with this precaution, my hair and clothes were so covered by the myriads which swarmed around the light, and caused me so much annoyance by getting under my dress, that I was forced to

make a virtue of necessity, and strip myself to a pair of light trowsers and white night cap, but for which I considered myself amply repaid in the capture of many new, and to me rare, specimens. Among the most common were several varieties of *Carabus*, four entirely new to me, *Hegeter*, *Tenebrio*, *Agieliæ*, and swarms of minute *Capridæ*. Of the rarer sorts I took two new *Cicindelæ*, two *Colymbetes* and very beautiful *Haliphus*, which I had never before seen. All these came around the light in numbers, but *Staphylini* and the smaller *Orthopterous* insects were incredibly numerous. I was almost black with them, and the sensation produced over my back, arms and legs, from the multitude of grasshoppers and crickets which were constantly jumping on or off me, and crawling in every direction, was very similar to what is called "needles and pins," or a "foot asleep." Great indeed was the enjoyment of a bathe with some dozens of ghurrahs filled with cold water, which I poured over my head before retiring to rest at one A. M. I should also mention, that on visiting the Commandant of my Regiment this morning, I found that he also had captured a *Paussus* last night, similar to those I have been lately taking, between the hours of nine and ten P. M., and rather strangely to say, his specimen had shared the same fate as my last, having fallen into the oil-burner on the table.

No. 4, *Fig. 4.*—*Sultanpore, Benares, July 24, 1841.*—This *Paussus* has already been figured in the 2d vol. of the *Transactions of the Entomological Society*, by W. W. Saunders, Esq., but as his drawing though highly characteristic, must (I conclude) have been taken from a dead specimen, perhaps a dried one, I have thought it worth while, if only for my own satisfaction, to make another delineation of it from a living specimen which I this morning captured, having succeeded in rescuing it without damage from the gripe of a small black ant, which in spite of its struggles was bearing it along with the utmost facility, holding on by one of its antennæ. Length seven-twentieths of an inch. The head is rounded posteriorly and sunk into the thorax. A deep cavity with edges in the form of a horse-shoe, the anterior margins of which are levelled towards the front, is a prominent feature in this organ. The bevelments terminate at the front just above the forehead, at which spot they turn upwards a little, and appear to spread out in the form of a rather deeply emarginated clypeus. In the centre of this excavation are two

minute vesicles, resembling the eyes on the anterior extremity of the scorpion, of a resinous color and lustre. The antennæ are composed of two joints, the last very large, somewhat irregular, approaching in form to navicular. The edges of the upper margin present the appearance of a screw, both edges meet posteriorly, and form a slightly recurved spine projecting from the basal internal angle. The club when viewed at the side, resembles a butcher's cleaver. The thorax has its upper portion cardiform, and appears as if fitted into a cavity of the lower part, which latter also presents a crenulated edging extending the whole breadth of its centre. The margins of the thorax, head, and particularly the screw-formed edging of the antennæ, appear translucent, and in color very much resemble shell lac. The eye is kidney-shaped, but appears round when viewed from above. The palpi are short, and not very salient. The abdomen is turned and gibbous near the cloaca, and its extremity is furnished with two large bundles or brushes of densely set golden colored hairs, having also a vitreous appearance, and which are only rendered distinguishable by being disturbed with the point of a pin or such like implement; these hairs I found so very closely arranged, that even with my greatest care in trying to separate them, I never once succeeded in singling out a fibre: they always remained in bundles, or in the form of a moistened painting brush. I must not omit to state, that the character of this curious appendage was (I believe) first made known to the world by W. W. Saunders, Esq.; at all events my observations on it were induced from what I read in his account of this Paussus, published in the 2nd vol. of Entomological Transactions.

The elytra which are black, with their anterior and posterior margins of a pinkish brown, have their surface closely covered with silvery hairs, and near their posterior external margins the curious follicle I have already observed in No. 3, is very apparent. The abdomen is of a dirty yellow or Isabella color, approaching to light umber, and near the penultimate segment beneath, there are a pair of spines which curve slightly outwards, for what intent and purpose I cannot conjecture. Breadth of elytra and abdomen equal throughout. Tarsi evidently of five joints, the last longest.

Note.—I tried all I could to induce this specimen to crepitate, without success. Probably its battery had been expended in its struggles

with the ant, from which I captured it. On being touched, it would immediately simulate death, and remain with contracted legs for many minutes at the bottom of the tumbler in which it was placed. The second day becoming more and more lethargic, and fearing its death might ensue, I plunged it into hot-water, at which moment the abdomen became very much distended and glabrous; but this was the nearest sign I could perceive of any approximation to the Brachini.

No. 5, Fig 5.—Sultanpore, Benares, August 17, 1841.—I this day captured the Paussus delineated as No. 5, which I however consider to be of the same species as No. 4, but differing in sex. On being captured, it immediately emitted two loud and very distinct crepitations accompanied with a sensation of heat, and attended by a strong acidulous scent. It left a dark-colored stain on the fingers resembling that produced by caustic, and which had a strong odour, something like nitric acid. A circumstance so remarkable induced me to determine its truth, for which purpose I kept it alive till the next morning, and in order to certify myself of the fact, the following experiments were resorted to. Having prepared some test paper by coloring it with a few petals of a deep red oleander, I gently turned the Paussus over it, and immediately placed my finger on the insect, at which time I distinctly heard a crepitation, which was repeated in a few seconds on the pressure being renewed, and each discharge was accompanied by a vapor, like steam, which was emitted to the distance of half an inch, and attended by a very strong and penetrating odour of nitric acid, in every respect (as far as I could judge) similar to that produced by many species of Brachini, I have frequently had opportunities of trying. On removing the Paussus from the paper, I found that a large spot was formed, near the place where the abdomen had been, and extending backwards for one-third of an inch. The paper appeared strongly corroded as if with caustic, the color of the spot being light brown, and totally distinct from the purple of the surrounding surface. Having repeated this experiment four times during the day with the same results, and being perfectly satisfied that I could not be mistaken, I proceeded to kill and set the specimen. On being thrown into boiling water, the abdomen swelled up and appeared like an inflated bladder, being very much distended, assuming the same appearance as that which is observable in Brachinus and other

allied genera, when they are similarly treated, and which I have had hundreds of opportunities of verifying. From these facts I presume, that there is a greater connexion between *Paussus Carabus* than is generally believed, and perhaps they might be removed with advantage to the vicinity of each other. It was only when I commenced setting my specimen for the cabinet, that I observed that it differed slightly from my No. 4. I may therefore give the description.

The principal points in which it differs are : first, in the thorax, the cremelations which cross its centre being more deeply sculptured and foliated ; secondly, the antennæ instead of leaving their upper margins in the form of a screw, are dentated, having four rather large scallops on each side, one between each tooth ; and lastly, the abdomen, though provided at its posterior extremity with the brushes noticed in No. 4, wants the spines beneath the abdomen, which latter organ instead of being of one breadth throughout, is narrowed as it approaches the thorax. In length it is the same, being 7-20th of an inch long, including the antennæ when placed at an angle with the body, and of the latter organs the last joint is the largest, of an irregular form, or nearly boat-shaped, with dentated margins above, which terminate at the posterior and superior angle in a tooth. The excavation on the head is very deep, at the bottom of which, the two vesicles similar to those noticed in No. 4 are very apparent, and highly resinous in lustre. The palpi are somewhat more salient, but at the same time more attenuate than in that insect. In its markings, there is also a strong resemblance, but the abdomen is slightly darker, and the pinkish brown patches at the posterior and anterior margins of the elytra are broader and better defined. I should notice, that in each experiment on the detonating power of this insect, I have used a different finger in giving the small degree of pressure required to induce its crepitating ; all of which have been well marked, but those of the last two trials are not quite so dark as the stain left on the three first, and I am anxious to see how long they will remain on my hands. Although I have for some time past suspected the fact, that the *Paussus* had the curious property observable in some of the *Carabici*, and which (I imagine) is believed to be inclusively attached to them, it was not till the capture of the present specimen that I determined to try the truth of my surmises. The present insect having been taken by a lady in com-

pany, who from the sensation she felt beneath the finger, concluded she had mistaken a small *Brachinus* for a *Paussus*, and the skin of which, bore evident marks of the dispoision, I have been induced to make these experiments, and the results have been as above stated. Captured No. 5 at a quarter after nine P. M.

Note.—*August 29, 1841.*—All the marks off my right hand.

Note.—*September 3, 1841.*—I have now lost all the stains on the fingers of my left hand, which I received in the experiments performed on *Paussus*, No. 5, by which it appears, that those of the left hand have remained 18 days, or 6 days longer than those on the right. This is singular enough, and I can only attribute the loss of the marks so much earlier in the right hand fingers to attrition, and more constant use, as the stains left were certainly much deeper in the three first trials than in the latter ones, and where I used the first, second, and third fingers of my right hand respectively.

No. 6, Fig. 6.—*Sultanpore, Benares, September 5, 1841.*—This *Paussus* has the thorax somewhat similar to that part of No 1 which I captured at Mhow, but in other respects differs considerably. Length 6-20th of an inch. The antumæ are composed of two joints, of which the last is very large, and in the form of a wide-mouthed cornucopia, being attached to the first at its basal angle. The margins of the upper side are slightly crenulated, and the upper surface is rather deeply excavated, giving this part a cuspiform appearance. Anterior and posterior margins compressed, the latter produced into a blunt recurved tooth. The sides of the club are faintly striped with 6 grooved bands; the eye when seen from above appears round, of an irregular oval shape when viewed from the side. Head trigonal, depressed with a marginal excavation, but no groove on the upper part. The thorax appears as if composed of two portions, the anterior being angulated, and forming a rather sharp spine on each side, with its base inserted in the posterior part. This latter portion is crenulated, with the exterior margins produced and rounded; a sulcus in the form of a bracket crosses the centre. The elytra are black, broadly patched anteriorly with brownish sienna, the posterior margin has a faint undefined line of the same color, which blends into the general black of the wing cases. The folicles at the exterior margin of the elytra posteriorly are much produced, and close to them on each side is a very

curious moveable spine, slightly incurved, and projecting over the latter segment of the abdomen. Body beneath a bright chestnut; head, antennæ and thorax a livid brown; all the joints in the tarsi are simple, cylindrical, furnished with hairs beneath, and of five joints in each leg, the first small, the last longest.

Note.—Taken accidentally while sweeping in high grass with a net under a Munja clump, (*Saccharinum Munja*.) On withdrawing this insect from the net, it gave two very distinct explosions, leaving the ordinary black stain on my fingers, the abdomen also swelled very much when submitted to the hot-water process.

No. 7.—*Sultanpore, Benares, September 6, 1841.*—A very curious *Paussus*, length 6-20th of an inch. Antennæ of two joints, the last long, club-shaped and grooved all round, forming six divisions, which, however, I could not discover to be perfoliate. The first joint near the base beneath is furnished with a small curved spine, above which, near the club, is a minute oval excavation. Head hexagonal, irregular, somewhat gibbose; eyes not visible from above, rounded when seen at the side. Thorax cordiform, broadly truncated posteriorly, with two small depressions on each side. Abdomen cylindrical, or shaped like a tub, palpi small, salient, the labial ones being over-arched by those of the maxillaries. No follicle observable on elytra. Tarsi of five joints, all simple, the first exceedingly minute. The coloring in this insect is peculiar; the last three divisions of the antennæ, and lower half of the elytra, are blue black. The head, antennæ, thorax, abdomen, and upper portion of the elytra, a bright light sienna. The legs and tarsi chestnut.

Note.—Found crawling up the wall of my bathing room. On being plunged into hot-water, the abdomen became greatly distended; but I observed no crepitation at this moment, or at the time of capture.

No. 8, Fig. 8.—*Almorah, July 29, 1842.*—Genus *Paussus*, length 9-20th of an inch. Head gibbous, strongly excavated both anteriorly and posteriorly, exserted from the thorax, the neck appearing very long. Antennæ of two joints, the last long, shaped like a peas-cod and bearing a small recurved tooth near 'the base of the upper' margin, edges compressed, and forming a carina on each side. Thorax cordiform, broadly truncated posteriorly, with the lateral margins produced: a sulcus in the form of a crescent runs across the thorax near its

centre. Elytra slightly narrowed anteriorly, and when viewed through the microscope appearing smooth, with diminutive frettings running in irregular lines down each; these are blue black, with a line of brown extending along the sutural margin, and a shading of the same color obtains both anteriorly and posteriorly. Head, thorax, and body chestnut brown; tarsi of five joints, the first small. Palpi rather large, salient, those of the maxillaries in particular. Eyes almost oval, but still uniform. Follicle on the elytra very apparent.

Note.—On capturing this insect which came in towards the light on the table some time after gun-fire, last night, I distinctly heard two strong crepitations, and my fingers were deeply stained with a brownish black color, and I accordingly reserved it for further trials, but unfortunately it appeared so weak this morning, that I was after ineffectual attempts to induce crepitation, obliged to postpone my experiments to a future date. On being killed with hot-water, the abdomen however shewed the usual sign, becoming greatly inflated.

Almorah, July 30, 1842.—I have indeed been fortunate in capturing the same species of *Paussus* as that of the 29th instant, and which was taken under precisely similar circumstances, having come to the lights at about 10 P. M. The crepitation on its capture was loud and very distinct, so much so, as to be heard by the company at table, and certainly equal to that of most of the small *Brachini*. I therefore tested its powers this morning again, having prepared some post paper with the petals of a deep colored *Dalilia*. I went through the old trial. The insect being carefully turned over it, I attempted its seizure, and as expected, a loud explosion was given, accompanied with vapor, and a strong scent of nitric acid. (I have the pleasure to transmit the paper on which the experiments were tried which bears two distinct marks, having only tested this insect twice.)*

I now proceeded to examine the foliaceous appendage on the elytra through the microscope, and I found that when the part was touched, an emission immediately took place from the spot, which spread so instantaneously over that part, that I could not observe exactly whence it originated. The appearance of the liquid resembled pus, which in a second or two granulated (if I may so term it) into egg-shaped grains, of which no traces remained after a lapse of a minute.

* We have not received this.—EDS.

I tried each elytron twice with precisely the same results ; during each emission a faint acidulous odour prevailed, and the part being touched with my finger, imparted that scent in rather a stronger degree to it. Having taken a drawing of the insect, I directed my servant to remove the microscope to another table, and in so doing, he unfortunately dropped the specimen, and has thus brought my experiment to a close.

Should the foregoing observations be considered worthy of publication, I shall be happy to transmit further extracts from my Note Book as occasion may present, or apply myself to any other point of utility in which my services may be deemed acceptable.

I also take this opportunity of enclosing the copy of a very magnificent species of Scarabeus, which I was so fortunate as to capture a few days since. The form appears familiar to me, and I fear may not be new to science ; but having no means of referring to books on the subject myself, perhaps you can supply the required information ; at all events, as it strikes me to resemble the general form assumed by the equatorial Scarabæi, it will be interesting to know that this insect was captured at an elevation of near 9,000 feet above the level of the sea, having been taken on the summit of the Gogur range in Kumaon, and was found feeding on the leaves of a tree unknown to me, but which I believe to be a species of Maple. Length three inches, weight one ounce, head and thorax a jet glossy black, the former furnished with a large recurved horn in the form of a sickle, compressed at the base. The thorax presents four protuberances, two above and two on the anterior margins. Scutellum black, elytra light chesnut brown, abdomen and legs deep chocolate. The maxillaries curiously dentated at their apices, and furnished with hairs. Maxillary palpi of four joints, the last spindle-shaped and longest, the first conical and smaller than the second. Mandibles, which are corneous and squared, jut out considerably beyond the sides of the head ; they are also thickly set with hairs, both on the internal and external sides, labial palpi very small. Antennæ of ten joints, the first conical, the next three nearly round ; the club is composed of three leaflet joints, and the intervening ones are nearly cuspidiform, the tarsi are simple, of five joints, the last much produced. Hooks nearly equal in length, and furnished beneath with a stiff seta, which near its apex is split into a brush-like form. Taken August 17, 1842, above Budlakhote, Kumaon. The drawing is taken of the natural size.



a c h s s



a



b



Fig 3



a



b



c



Fig 4

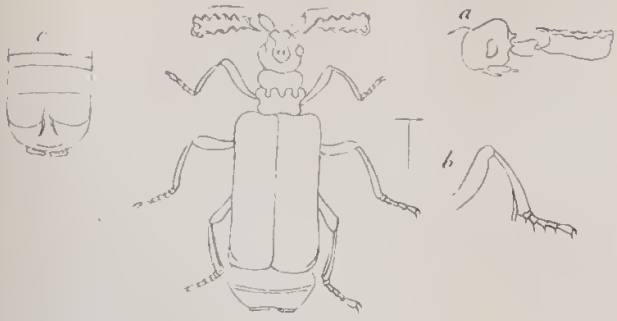


Fig 5

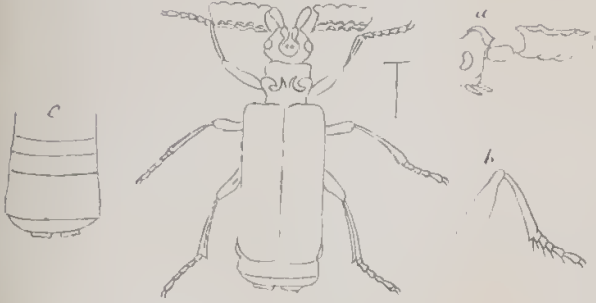


Fig 6

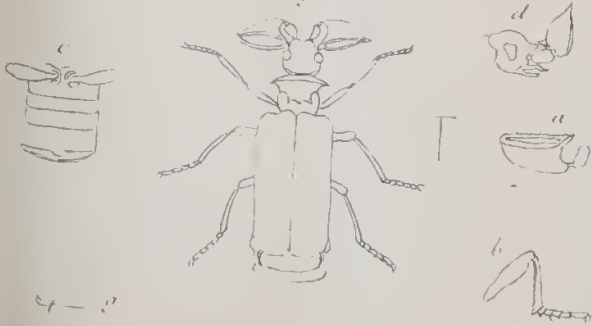


Fig 7

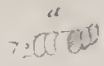
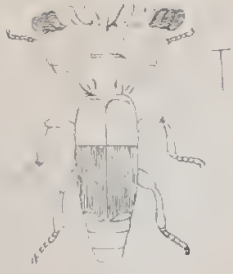
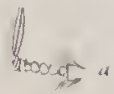
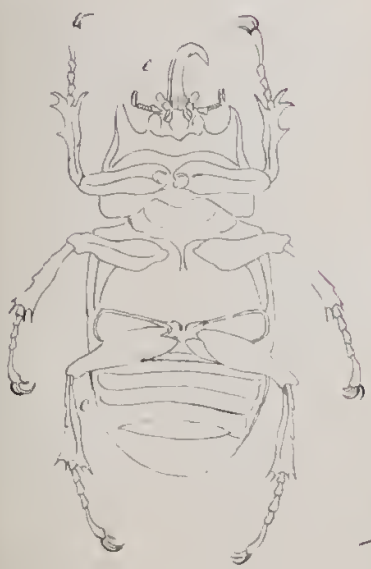


Fig 8





The accompanying letters refer to the sketches of the Paussi equally with the Scarabeus: *a*, antennæ; *b*, posterior tarsus; *c*, abdomen; *d*, side view of head; *e*, inferior view of head; *f*, underwing; *g*, spine of elytra; *h*, folicle or elytra; *i*, maxillary palpus and maxillar.

Almorah, September 16, 1842.

Memorandum on the construction of a Portable Meridian. By E. C. RAVENSHAW, Esq., B. C. S.

1st. Those who have visited the Cathedral of Florence, or the Church of Saint Petronio at Bologna, may recollect having observed a straight line running down the whole length of the aisle, and a small round hole in the wall of the building, about fifty or sixty feet above the level of the pavement. A traveller who should enter either of the said churches about noon, would not fail to be struck by the mysterious conduct of those about him; a dozen watches of quaint forms and various sizes would be seen to spring suddenly from the fobs and waistcoat pockets of people as quaint and peculiar as their timepieces. Their eyes would be seen to be intently fixed on some object on the ground, and the traveller would naturally imagine that the toe-nail of a saint or a martyr was about to perform a miracle, the exact period of which it was as important to fix as that of the transit of Venus. On joining this interesting group, the traveller would find that the object of solicitude was a bright round spot caused by a ray of the sun passing through the aperture above mentioned, which is seen slowly approaching the line that runs down the centre of the aisle. This line is a meridian, and when the bright round spot arrives at, and is bisected by this line, the sun intimates to the spectators, that he has reached his meridian altitude. The watches are returned to their fobs, and voices are heard muttering in Italian, German, French, and English, either self-congratulations on the accuracy of their Breguets, or uncomplimentary remarks upon the artists who manufactured their watches.

2d. Imitations of these magnificent meridians are made on a small scale by individuals for private use; a wooden rod or pedestal, about a foot high, having an iron plate with a hole in the centre, fixed at right angles on the top of the pedestal, forms the substitute for the wall of the Cathedral; one of this description is (or was two years ago) to

be seen at a window in the house of the Catholic priest adjoining the Church at Bettiah in the Chumparun district. A French gentleman, (now Principal of the Dehli College,) acquainted me with the method of laying down the meridian line from the above instrument, and I have since then constructed several. All these meridians are of course fixtures, but it occurred to me, that if a portable one could be made, it would be extremely useful when travelling about the country in tents, and an excellent substitute for one of Dolland's Universal Dials. Though inferior to the latter in the circumstance of shewing only one hour in the day; viz. twelve o'clock, yet it would be superior in shewing that hour with an accuracy unattainable by the Universal Dial, owing to the variation of the compass by which the latter is always set. The variation of almost every needle differs considerably, so that a knowledge of the general or average variation of the compass at a particular place, does not afford any information as to the variation of the particular needle in your dial, and without ascertaining this point, no dependence can be placed on the time given by the dial. A variation of one degree makes a difference in time of

THEODOLITES.

Instrument.

No.	2°	38'	0"	Variation East,
"	16.	2	21	0 January 1841
"	12.	3	39	0 at Cuttack.
"	21.	2	37	0
"	23.	2	49	0 These needles
"	61.	2	33	18 not more than
"	79.	2	17	32 3 inches long.
"	76.	1	36	22
"	5.	1	26	0

supposing the latter to be the Dial, there would be an error

about five minutes, and the annexed memorandum, made by Lieut. Thuillier, (the Revenue Surveyor of Cuttack in 1841,) shews, that among a number of needles, all of the same length, some differ from others to the extent of 4°;

variation of the needle in an Universal Dial, there would be an error in the time of about 20 minutes.

PRISMATIC COMPASSES.

Instrument.

No.	2.	1°	15'	0"	Variation East,
"	3.	1	0	0	needles 2½
"	4.	4	0	0	inches long.
"	9.	2	15	0	
"	31.	3	30	0	
"	46.	1	45	0	
"	36.	2	39	0	
"	16.	3	30	0	
"	119.	2	15	0	
"	23.	1	15	0	
"	22.	1	15	0	
"	40.	3	45	0	
Compass	3.	2	0	0	
"	12.	2	0	0	
"	21.	1	38	15	
"	17.	1	45	0	

3d. The Portable Meridian which I am about to describe, if accurately constructed by professional instrument-makers, such as Dolland, or Troughton and Simms, would give the time with much greater, if not perfect, accuracy, as it would be free from all errors arising from the variation of the compass. This instrument, shewing (or professing to shew) the true meridian, would also

enable any person, however unscientific, to determine the variation of any needle in a minute by mere inspection. The altitude of the sun or moon,* when on the meridian, can be read off with equal ease, and the latitude of any place ascertained with the aid of a Table of Declination pasted on the lid of the box. By fixing sights at each end of the meridian line, the instrument would serve for taking levels; and last, though not least, would enable Surveyors to lay down a long meridian line for the base of all their triangles, with much less difficulty than is experienced in many of the usual methods. Though simple and easy in theory, many of these methods are difficult in practice. They require that an officer, perhaps suddenly ordered out to make the survey of a district, should be in the possession of certain instruments and certain astronomical works, which are not always to be obtained. For instance, the most approved method of laying down a meridian is said to be by observations of equal altitudes of the Polestar; but without the Nautical Almanac for the year, which is not always to be obtained, it often requires nights of watching, and the patience of a Chaldean to catch the star in the small field of a Theodolite telescope at the precise moment necessary for the accuracy of the observation. The process by observation of the sun's azimuth is also I understand not free from difficulties. Under these circumstances it is hoped, that the simple instrument now submitted for consideration, (though it does not pretend to perfect accuracy,) may be occasionally found useful by the scientific as well as by the unscientific world. With these few explanatory remarks, I proceed to describe the instrument, a sketch of which accompanies this memorandum.

4th. A B C is a brass semicircular plate, about 2-10ths of an inch thick, with the degrees marked on the rim, which are counted from the point C. both to the right and left, D C being of course at right angles to A B. E F is a moveable radius turning on the point E, and having degrees of altitude marked on it, as shewn in M N. The mode of laying down the degrees by means of a graduated circle will be understood from the figure S T V; K L is a perpendicular flat rod having a small oblong plate L with a hole in the centre, fixed at right angles to K and parallel with the horizon. This rod KL is to be fixed at D† perpen-

* At night.

† As exemplified in the figure O P.

dicular to the brass semicircle A B C., so that the round hole L shall be immediately over the centre point E. I I I are elevating screws by means of which the instrument is first to be accurately levelled. This may be done either by placing a common spirit level on the brass plate, or by having two small spirit levels at right angles to each other let into the plate.

5th. *To find the meridian line*, place the instrument or rather the line E C due north and south by any compass, C being the north point and E the south, at any time (say an hour) before noon* the sun will be observed to shine through the hole L, throwing a bright round spot on the left side of the plate near one of the circles a, † a, a; wait till the spot comes on the circle, say at G, and mark the point with a pencil. Then move the right side of the radius E F up to it, and read off the number of degrees, say 50° on the rim of the plate. The sun after crossing the circle at G will proceed along the dotted line until it reaches the other side of the circle at H, where it will arrive about an hour after noon; mark the point as before and read off the number of degrees, say 30° , add them to the number noted above (50°), the result will be 80° . Divide by 2, which gives 40° , or the bisection of the arch G H, move the radius to the point of the rim marked 10° , which is half way (or $40^{\circ}\ddagger$) between the extreme points G and H. The direction of the radius as now placed will be that of the true meridian, being the bisection of the arch G H, described by the sun himself, (the great *Archimedes*) at equal altitudes.§ The instrument having been originally set to the magnetic meridian, the distance between the line E C and the radius E F; viz. 10° , is the variation east of the compass with which the instrument was set. It is evident that the variation of any other compass may be ascertained in the same manner, or by placing the needle with its own graduated circle on the meridian line E F.||

* Two hours would be better if the sun is very high.

† Any number of circles may be drawn, six or eight are necessary to suit different times of the year.

‡ Either the line M N, or the right side of the radius will answer if placed opposite 10° , but the former is best.

§ The difference in the sun's declination in two or even four hours is so slight, that it would not cause an error in the position of the meridian of more than a few seconds, it is unnecessary therefore to apply the equation of equal altitudes.

|| Where great accuracy is required, and the needles are long, the observation should be made either at 10 A. M. or 10 P. M. as the needle moves slowly west in the forenoon, returns to its mean position about 10 P. M. then deviates to the east, and returns at 10 A. M. like the barometer.

6th. *To find apparent Noon*, the instrument must remain in the same position until next day, and when the luminous round spot occasioned by the sun shining through the aperture L falls on the centre line M N of the radius, the sun is at its meridian, and shews apparent noon. By adding or subtracting the equation of time for the day of the month, the mean time, which a watch or clock ought to keep, will be ascertained.

7th. *To find the altitude* it is only necessary to mark the point on the radius where the sun crosses it, and read off the altitude.*

8th. *To find the latitude*, deduct the observed angle from 90° , and add the result to the declination if north. If the declination be south, add it to 90° , and deduct the observed angle. At the equinox, the observed angle deducted from 90° gives the latitude.

9th. *In order to lay down a meridian line* for survey purposes, fix the sight R on to the rim of the instrument opposite the rod o, as shewn in the figure O P. Look through the two corresponding apertures (which are exactly on a level with each other) at a pole erected at some distance in the line of sight. Then move round and look through the sight P in the opposite direction at another pole erected to the south in the line of sight, cut a line on the ground connecting the two poles, and your meridian is complete.

10th. I have constructed a small instrument of this description, the diameter of which A B is $9\frac{1}{2}$ inches, and the height of the pedestal or gnomon 2 inches. It is made entirely of brass, and the degrees on the rim have been marked off with great accuracy by a native mistry. The cost of the materials is not more than two rupees. The labour, however, is considerable, and the man asked sixteen rupees for the whole, including his own remuneration. This, however, is cheap compared with one of Dolland's Universal Dials, $4\frac{1}{2}$ inches in diameter, which in Calcutta costs eighty rupees.

11th. Lest a scientific instrument contrived by an unprofessional individual, should be received with doubt or hesitation, I have annexed to this memorandum extracts from two notes from the professional Surveyor of Patna, giving his opinion on the accuracy and utility of the instrument, which I hope will be thought satisfactory. The principle

* If the moon should pass the meridian at night, its altitude and the time may be ascertained in the same manner.

of it was also approved by Lieutenant Thuillier, the Revenue Surveyor of Sylhet, who was in temporary charge of the Patna Survey, during the absence of Lieutenant Maxwell.

Extract of a letter from Lieut. Maxwell, Revenue Surveyor.

I hope the following will be satisfactory to you, and will prove to the world, that the little instrument deserves the name you have given it. I send exactly what I did, and assure you that I have not attempted to force the observations into good ones, they are all *bona fide* ones.

On the 27th, the morning observation was	70 50	
Evening, 	63 00	
	7 50	
	3 55	Var. of needle.
,, ,, 28th, the morning observation was	71 30	
Evening, 	63 30	
	8 00	
	4 00	Var. of needle.

I placed two poles on the line (radius when set to the 4°), and the following angular observation from my meridian line, (whose bearing is $352^\circ 59'$), gives a capital result.

The true bearing of line A B is $352^\circ 59'$.

\angle A B C. = $41^\circ 34'$ \therefore bearing of line B C is $214^\circ 33'$.

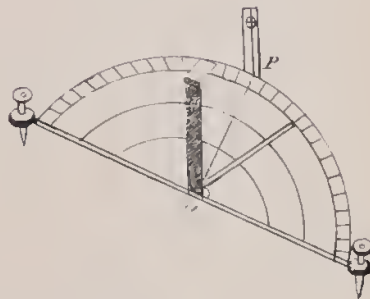
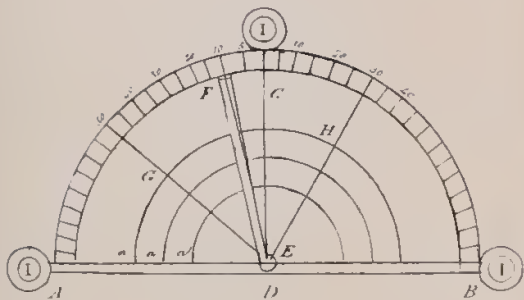
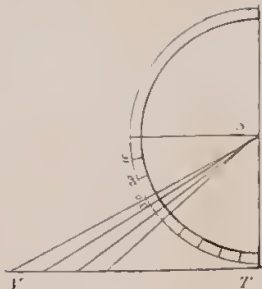
Interior \angle B C D. = $325^\circ 22'$ \therefore bearing of line C D is $369^\circ 55'$.

Line C D is set by your little instrument at $350^\circ 00'$ \therefore the difference is $5'$. Considering the difficulty of seeing through the sights, you will perhaps agree with me in thinking the result most satisfactory. There is no doubt whatever, that if an instrument like yours were made with a rack and pinion and divided to minutes, that the utmost accuracy would be obtained.

Extract from another letter from Lieut. Maxwell, Revenue Surveyor.

It is indeed an excellent "*hikmut*;"* its great beauty is its simplicity, for the most ignorant can use it, and I can with great confidence state,

* "Contrivance."



RAVENSHAW'S PORTABLE MERIDIAN.

AND

Universal Noon-Dial

Patented in Great Britain and the United States of America.

that two or three of them made by Captain Boileau, the instrument maker in Calcutta, would be a great acquisition in a survey where the European assistants in general know no more about checking a meridian line, or giving the latitude of their camps, than the man in the moon.

Descriptive list of some Coins lately received from the University of Christiana by the Asiatic Society. By DR. E. ROER, Librarian. Asiatic Society.

To H. TORRENS, ESQ. *Secretary, Asiatic Society.*

SIR,—I beg to forward to you a descriptive list of the coins, which we have lately received from the liberality of the University of Christiana.

They consist of coins of some of the Danish kings of the Oldenburg dynasty, and of a most valuable collection of coins of the 12th century, especially Norwegian, forming a part of those coins which one Anders Anderson accidentally discovered under a large heap of stones on an uncultivated spot of his estate at Daelie in the province of Hedemarken in Denmark. Having delivered a part of them, of the weight of forty ounces, to the Magistrate, he afterwards sold to the University of Christiana 5000 coins of the weight of $13\frac{1}{2}$ ounces, for the same weight of unmanufactured silver.

I take this opportunity of offering a few notices on the antient coins of Norway, for the materials of which I am indebted to the following dissertations of Mr. Holmböe, Professor at the University of Christiana:

1. De prisca re monetaria Norvegiae et de numis saeculi 12mi nuper repertis. Christianiae, 1841.
 2. Descriptio ornamentorum, maximam partem aureorum, et numorum saeculi 8vi et 9ni. Christianiae, 1835.
 3. De numis MD medii aevi, in Norvegia nuper repertis, 1837.
- they I hope, will be of some interest for the numismatic members of the Society; and the more so, as according to a remark of Mr. Holmböe, the numismatics of Norway were for a long time not sufficiently explored. This arose from the rarity of antient Norwegian coins, as

well as from the scanty notices given by the historiographers of the middle ages on numismatic subjects. The obscurity shrouding those remote ages had been partly dispelled in the course of the last fifty years by a great number of coins, dug out of the earth, or found in the foundations of some antient churches, which had been destroyed by various causes. Still the links were wanting to connect the coins of the 11th century with those of the 13th, which are now amply afforded by the coins found at Daelie.

The Norwegians used, as most nations did, the same term for money and cattle. The Norwegian word "Fe" signifies cattle and money, and "penningi" does not only denote the species of coins known under that name, but money in general.* In like manner, in accordance with other nations which fixed the value of things by metals, they weighed the metal before they had coins.† The antient weights of Norway are the following :—

1 Marca (mörk)	=	8 Orae, (aurar)‡
1 Ora (eyrir)	=	8 "Ortugae, (ortugar.)
1 "Ortuga	=	10 Denarii, (penningar.)

The gold, used for weighing, was extended into a kind of wire in the shape of a ring, either simple or of many folds (called bagr or bauer,) which at a sale was weighed off entirely, or in pieces. The silver as a means of exchange was used in a similar manner, having sometimes the shape of a solid mass; sometimes of a ring; sometimes trinkets were also applied to the same purpose, till foreign coins are at last observed, especially Anglo-Saxon and German, of which a great many are found in Norway.

* Clarke (on the connexion of the Roman, Saxon and English coins, p. 390) gives another derivation of this word which at first sight seems highly probable; that penning (evidently the same with the Norwegian word) was formed from the Latin pendo, and was sometimes written more agreeably to this origin "pending," and both expressions were derived from the antient and universal custom of paying by weight; but this appears rather an accidental coincidence, as the Saxon word is the same with the Norwegian and German, and in the latter language, the term p (f) enning obviously shews its origin from the word in use for cattle.

† The Hebrew word שקל originally denotes to weigh; thus talentum and libra signify a balance. The principal gold and silver coins among the Greeks were called staters, which is taken ἀπο της στατικης from the scale. Thus in Rome, all payments were made per aes et libram.

‡ The terms marks and oras were first used by the Goths, and ora, which is corrupted from the Latin word "aureus" is synonymous with solidus.—Clarke, l. c. p. 310.

Copper was very rarely used as a means of exchange, and we may notice, that during this whole period no gold or copper coins were used in Norway, unless we should refer to the latter, the silver coins of the end of the 13th century, with which a large portion of copper was mixed. The price of the gold was about the 10th century eight times higher than that of silver, which proportion seems to have obtained throughout the whole of Europe during that period.

The greater part of the ornaments dug out of the earth are made of pure gold and silver, and it is even recorded in antient histories, (Sögur,) that the silver was cooked (brent silfr.) It may be here noticed as a curious fact, that many nations of no connexion whatever, and at most different periods, have adopted gold rings of the above described shape as the first equivalent of the price of things. Thus it is said of Gideon, that after his victory over the Ismaelites, he took from them a great number of gold rings, and Job received such rings from his friends. They are represented on the antient monuments of Egypt, are sometimes dug out of the earth in Ireland, Norway, Sweden and Denmark, and are still in use in Abyssinia and Guinea.

It is not quite certain which king of Norway first struck coins, though it appears probable, that it was not done previously to Hakim the Good,* (A. D. 938-963.) Of the coins of Hakim's successors, we know only one of Olav. Tryggveson (995-1000), one or two of Count Eric (1000-1016), one of Magnus the Good (1035-1047), and one of Harold Hardrade (1074-1067), while in antient chronicles we find no mention of Norwegian coins before Harold, of whom they state the particular circumstance, that eight days after the celebration of Christmas, he distributed some money to his soldiers, which according to the same authorities were called Harold slata, (struck by Harold), and for the greater part consisted of copper. The art of coining seems to

* In the year 1834 a great variety of ornaments and of Byzantine, Arabic, Franco-Gallic and Anglo-Saxon coins of the 8th and 9th centuries were found in Norway, and from the fact, that no Scandinavian coins were among them, we may conclude, that at the period, when those things were used as ornaments, that is, in the 8th and 9th centuries, no Scandinavian coins were struck. It therefore becomes probable, that this was not done before the middle of the 10th century. The most antient Norwegian coins as yet discovered, are those of a Hakim; but as two kings of his name have reigned in that century, Hakim the Good and Hakim the Bad, who lived about the end of the 10th century, it is doubtful to whom we are to assign them.

have been earlier introduced into Norway, than into Sweden or Denmark ; for the most antient coins of Sweden are those of Olaus Skotkonung (993-1024), and of Denmark those of Sveno Tueskjaeg (991-1019), on the coins of whom the name of the same mint-master is inscribed as the coins of Olav Tryggveson (995-1000); but in Norway coins were already struck under the reign of Hakim the Good or the Bad, which latter reigned between 978-995.

No coin, exceeding the value of a denar, seems to have been struck in Norway from the commencement of their coinage to at least the first years of the 13th century, and this sort of money apparently was then most common all over Europe. The shape of the types was usulaly borrowed from English coins, and the first coiners are evidently from England. Godvine at least, who towards the close of the 10th century superintended the mints of the kings of Norway, Sweden and Denmark, bears an Anglo-Saxon name, and Ulf, the mint-master of Harold Hardrade, inserted the preposition "on" on the Norwegian coins. The obverse of these coins accordingly represented the bust or the head of the king together with his title and name, while the reverse contained a cross and the name of the mint-master, or the town, or of both in the Latin language. I may here notice, that with regard to the antient coins of Norway, the same observation obtains as to those of England. The more antient they are the better is their execution, as the remains of Roman art in the earlier centuries of our era were more and more overgrown by fresh influxes of barbarians. In the period we allude to, only a few traces of the Roman way of striking coins had remained, and still these coins are much superior to those of the 12th century.

Beside the coins bearing types on either side, a large number of small, thin, and hollow coins were struck in Norway at that period, which were called *bracteato* (from *bractea*, a thin leaf.) It is, according to Mr. Holmböe, a common error to ascribe these coins at an earlier period to Scandinavia than to Germany, as on a careful examination it appears, that no coin of this shape can be assigned to Norway previously to the middle of the 12th century, while the Germans used them already in the 11th century.

The collection, presented to the Society, consists almost entirely of such *bracteati*, or hollow coins. They are very thin and brittle, and the

obverse only has a sign, generally representing a single letter, or a cross of various shape, or any other simple device, while the reverse shews the hollow impression of the same. Some of these devices are accompanied by one or more points variously distributed, and surrounded by two or more circles, which are either plain, or formed of a series of globules. I must not omit here to mention a remark of Clarke (l. c. p. 23) that the cross upon Anglo-Saxon coins, and in the Norman reign is said to have been deeply impressed, that the coins might be divided into halves, &c.

In conclusion, I would notice, that the coins bearing the device of a spiral line and of three concentric circles with a point in the centre are believed to belong to Sigurd, Eistein and Ingo (1142-1155) V. list No. 41-44, those with the letters M. and R. to Magnus the son of Erlin (1161-1184) No. 14-17, and those with the letter G to Guttermus (1204) Nos. 10-12.

E. ROER.

Additions to the Catalogue of Nepál Birds. By B. H. HODGSON, ESQ.

1. *Merulina. Grandala*, Mihi (new).

Bill medial, slender, straight, *Phœnicuran*, but the base rather more depressed and more excided by the nareal fosse and gular flap.

Nares oval, lateral, free, placed at the fore-end of a largish fosse, and shaded above by a small process of its membrane. Gape smooth.

Wings very ample and firm: the first quill bastard, second longest; tertiaries hardly above half the length of the primaries.

Legs and feet simple, ambulatory, slender and delicate in all their proportions.

Tail medial, firm, forked.

Type. *Gr. côlicolar* (new). The male throughout black internally, but the whole body and head glistening externally with brilliant small-blue: bill and feet jet-black: iris dark. Female sordid slaty, or blue-black with a brown smear, alars and caudals darker: a white bar through the wing: body striped down the shafts with luteous-white: bill and legs uniform black. Total length 9 inches, of bill to gape 13-16 inches; to brow 9-16 inches; tail $3\frac{3}{4}$ inches; closed wing 6 inches,

tarse to sole $1\frac{1}{8}$ inch, central toe and nail, 15-16 inches, hind toe and nail 10-14 inches: female smaller, being about 8 inches in total length.

Habitat, the northern region or Cachâr, in under-spots near snows: solitary: insects and gravel in the stomach.

Remark: a singular bird, having the general structure of a Thrush, but with the wings vastly augmented in size and the bill of a Sylvian. Analogous to *Grallinæ*?*

2. *Crateropodinæ*? *Heteromorpha*, † Mihi.

Bill short, stout, compressed, hard, blunt, entire, as high at the base as long, and much concealed by the frontal plumes; ridges great, curved, and broad; sides flat: tomia even: tips equal and obtuse.

Nares small, round, remote, having a raised rim, and concealed by incumbent setaceous plumules. Rictus narrow, furnished in both mandibles with slenderish bristles.

Wings submedial, feeble, bowed, narrow, sixth quill longest; four first much graduated; first plus half of longest: tertials evanescent.

Tail largish, graduated, firm; the separate plumes wedged at their tips.

Legs and feet very stout: the tarsi elevate, with large scales across front-half, and postea half smooth and sharp. Digits shortish, flattened on soles, basally connected, especially the outer one: the inner fore-toe as long as the outer and stouter; the central not elongated; the hind as long as the lateral fore-toe, stout and depressed. Nails large, moderately bent; sufficiently acute.

Plumage very soft and lax.

Type. *H.* [*Paradoxornis*, apud nos, E. B.,] *unicolor* (new). Throughout of an olive-brown colour, brightest on the fully crested head, and next on the alars and caudals: bill yellow: legs slaty-grey: iris brown.

* A specimen in nestling plumage has just been received from Mr. Hodgson, having the head, neck, interscapularies, and under-parts, marked with a pale central line to each feather. The bill of this individual is mutilated, but judging from the rest of its external structure, I agree with Mr. Hodgson in considering this remarkable bird much allied to the true Thrushes.—E. B.

† If the several new genera herein adverted to can be properly referred to the *Crateropodinæ*, that group would seem to contain representatives of all the tribes of Perchers, and perhaps should be broken up to be distributed among all of them. All the *Crateropons proper* might be referred to the Garruline group, for example.

Length (total) seven inches and three-quarters; of bill nine-sixteenths; of tail four and seven-eighths; of wing three and seven-sixteenths; of tarsus one and one-eighth; of central toe and nail seven-eighths; of hind ditto ditto three-quarters.

Habitat, the Cachâr: dwells in thick brushwood: frequently alights on the ground, but seems to feed aloft on bugs and other hard insects of trees: in small flocks: not noisy.

Remark: greatly allied to *Paradoxornis*, also to our *Temnoris* and *Conostoma* [*J. A. S.* Vol. X, p. 856]: differs from the first in the smooth level, unarmed and equal tops and tomixæ of the bill.*

3. *Temnoris*, olim *Suthora* (amended).

Bill very short and stout, as high and nearly as wide as long, with broad, greatly curved ridges and subtumid sides: tomixæ even: tips equal and truncate: base much and softly plumed. Rictus smooth. Nares small, round, hidden by a soft frontal zone.

Wings short, rounded, much graduated, yet firm, and tending to a point: 6th primary longest; 5th and 7th hardly less; the two first much, and the two next less, graduated; 1st half the length of longest. Tail longish, much graduated, simple and feeble.

Tarsi strong, elevate, smooth. Toes short, flattish below; unequal: the exterior fore longer and basally connected, the inner fore less,

* I have considerable doubts whether, on actual comparison of specimens (especially if recent), this form will prove to be separable from *Paradoxornis*. The *P. flavirostris*, Gould, (apud Horsfield,) was obtained by Dr. McClelland in Assam, and was described by him, under the supposition that it was new, as *Bathyrhynchus brevirostris* in the 'India Review' for 1838, p. 513, and a rough figure given of it. In that description it is stated that the mandibles "meet in an obtuse point in front without a hook;" and in my *P. ruficeps* (*J. A. S.* XI, 177), which in other respects essentially accords with the generic diagnosis of Mr. Hodgson's *Heteromorpha*, the impending of the upper mandible (so far as can be made out from the dry specimen) is in the most trifling possible degree, which, from recollection, I think is also the case in *P. flavirostris*. Mr. Hodgson, at page 563 of the same volume of the 'India Review,' identified McClelland's *Bathyrhynchus* with his own *Suthora* (since named by him *Temnoris*), and even suspected that his typical species, or *Nipalensis*, might be the same as Dr. McClelland's *brevirostris*: but the description and figure which are now furnished by Mr. Hodgson of his *Temnoris Nipalensis* indicate the very inferior size of the latter species, to say nothing of other distinctions, amounting, however, at most, in my opinion, to subgeneric. We have, accordingly, four species now ascertained of this remarkable group, of which three are probably new to Ornithologists in Europe. The diminutive *Temnoris* has recently been received by the Society from Darjeeling. —*Cur. As. Soc.*—Mr. Hodgson has just forwarded a specimen of his *Heteromorpha*, and I consider it to be a true *Paradoxornis*.—*Ibid.*

and freer at base; hind stout, depressed, equal to the inner fore-toe. Nails compressed, deep, acute, *Parian*, but less suited for creeping.

Plumage soft and lax.

Type. *T. Nipalensis* (see 'India Review' [for 1838, p. 32], Habitat) the Cachâr, in small flocks; frequenting brushwood and tall grass: manners of *Parus*, of which it has the entire aspect; but besides its truncated bill it differs by rounder wings and larger and less arboreal legs and feet. Is greatly allied by its strange bill to the last.

4. *Ampelidæ, Prosorinia*, olim *Cochoa* (amended).

Bill moderate, Thrush-like, but much more depressed and greatly excided at base by nareal and gular cavities, and both tips armed.

Nares large, ovoid, free, lateral, and typical. Rictus wide, with short curling bristles which partly tend over the nostrils.

Wings medial, firm; *Turdine*, but rather less acuminate, with the fourth primary longest. Tail firm, rounded.

Legs and feet simple, ambulatory, *Turdine*, but the tarsi shorter though not less strong, and thumbs longer.

Types. *Pr. viridis et purpurea* (see *Journ. As. Soc.* V, 359.)

Remark: with the size, aspect, and manners of Thrushes, these birds are typically *Ampeline* in structure, and should stand next to *Casmarrynchus*. Both species are amply crested, and have subnude orbits.*

* The Society has received several specimens from Darjeeling approaching closely to the description of *Pr. purpurea*, but they would seem to be less bright in colour, certainly than the figure given, and have not the tail-feathers similarly pointed. Vide my description of a Darjeeling male, Vol. XI, p. 182.—*Cur. As. Soc.* A female has more recently been received by the Society from Mr. Hodgson, and they are the same. *Pr. viridis* I have not seen.—*Ibid.*



Merulinæ

Grandala Schistacea, type.
two thirds natural size

Wardell del.

Hach-Antonelli fecit.



J. Bennett del.

Heteromorphia Unicolor type
natural size

T. Black, Ornithologist Press



J. Bennett del.

T. Black lith.

Temnoris Nepalensis type
Size of nature.

J. Bourcett del

Amphelinae
Proserpina purpurata type
2-3/16s Nat Size.



J. Gould. Asante with Press

On an improved Simpiesometer, "The Tropical Tempest Simpiesometer," just received in Calcutta. By H. PIDDINGTON, Sub-Secretary, Asiatic Society, &c.

The following Notes were by the kindness of Mr. Lepage, of the firm of Ostell and Lepage, Booksellers of this city, handed to Mr. Simms, of the well-known firm of Troughton and Simms, with a request that they would try the experiment indicated, and manufacture an instrument for me with the improvements suggested. They have done so, and the instrument was exhibited at the August Meeting of the Asiatic Society.

There are two objections made to Simpiesometers. The first, that "they disquiet people needlessly," and the second, that "they get out of order." The first objection it is evident we cannot remedy, for it depends on individual character, on experience, on knowledge, and on many other personal or acquired peculiarities and qualities, over which we have no control. But with respect to the second defect, I think I can point out to the makers of these instruments, two principal sources of it; and these are, alterations in the chemical qualities of the oil, and the shortness of the tube. We cannot (yet) guard against any alteration of the oil, which might affect the gas; but *if* this occurs, it is probably through the chemical action of light upon the oil. I should suggest then, as an improvement, that the glass be covered with a metallic door, to open with a hinge, so that except when observed, the instrument would be in darkness, where pressure and temperature would operate quite as well as in the light, and the glass would be more-over less liable to break.

The next improvement is the main one, and is, I am convinced indispensable to the efficiency of *tropical* Simpiesometers; viz. instruments which are to be of use for any length of time between the tropics. If Messrs. ——— will refer to Colonel Reid's work on the Law of Storms, they will there see in the chapter on "Storms at the mouth of the Hooghly," p. 293 of 2d edition, that in 1833 in the *Duke of York's* Storm the Barometer fell below 26.50 at a temperature of 79°! and I am certain that in many storms it falls at least to 27.00, with a temperature of 80° or more.

Now if Messrs. ——— will try in their receiver the effect of reducing the pressure to 27.00, and keeping the temperature at 80 or 84°, for I have known it as high as this, I suspect they will find that the gas will escape round the curve of the leg, and bubble up through the cistern. In a word, the tube and scale are not long enough for tropical hurricane depressions; and when a ship gets through one of these, the Captain may not improbably find that his Simpiesometer does not act so well as before, and thus the

worst character which an instrument can get becomes (and really is) attached to it, *i. e.* that it is “*very liable to get out of order.*” The *Duke of York's* Simpiesometer is still in Calcutta, but gives indications differing half an inch from the Barometer, as I have heard: one sent to me for trial gave regularly on an average 0.7 *above* the Barometer standard, and at 28.5 or 27.00 inches of pressure, with temperature 80°, would have been I think useless, or the gas would perhaps have escaped; hence, as I judge the universal complaints against Simpiesometers which have been long in use in tropical countries.

The remedy for this last defect is also simple enough, and if Messrs. — will try it, I shall be glad to assist them in making the improvement known in India, and especially in Calcutta. It consists in making the scale and tube long enough to leave at least half of an inch column of oil at pressure 26.00 and temp. 84°, and as I have said before, keeping the Simpiesometer in the dark. I think these improvements would give, if not a title to a patent, at least to a new name, “Tropical Tempest Simpiesometers.”

P. S.—I have seen in some patent Simpiesometers a contrivance for corking the cistern when moving the instrument. If instead of a cork this was a stopper of caoutchouc, and could be screwed down, it would be a great improvement.

Messrs. TROUGHTON'S note to Mr. LEPAGE is as follows:—

R. C. LEPAGE, ESQ.

29th December, 1842. Fleet Street.

SIR,—I find that in extreme cases, such as those mentioned by Mr. Piddington, the Simpiesometer would get beyond the range of the scale, and suffer the damage described in his letter; moreover, I think that a door to the case in order that light may be admitted only when necessary, a very judicious precaution.

If you desire it, we can soon prepare one with the improvements.

I am, &c.

(Signed) W. SIMMS.

The instrument has just been landed, at a cost of sixty-four rupees, and a brief description of it may be worth putting on record for our distant subscribers. The tube is, from top to the bottom of the curve, 18 inches long, the common Simpiesometers being only about 15, and at a pressure of 26 inches, with a temperature of 80°, would still leave about an inch of oil above the level of that in the cistern: and I trust it is not likely to undergo any severer trial. There is a slide with (I suppose,) a caoutchouc stopper to the cistern, and the usual register plates at the bottom.

The wooden frame is made very solid, and has a polished brass door in front, with hinges and hooks, and I may mention finally, that it was brought out from England screwed up in the cabin of a ship, and this is indeed the only safe way of getting out these delicate and fragile instruments.—H. P.

Report on the Government experimental working of the Copper Mines of Pokree in Ghurwal, with notices of other Copper Mines. By G. S. LUSHINGTON, Esq. Commissioner, Kumaon and Ghurwal.

No. 1780.

To G. A. BUSHBY, Esq. *Secretary to the Government of India, General Department, Fort William.*

SIR,—With reference to your communication, No. 866, dated the Revenue Department 11th November, 1840, I am directed to forward
ment. for submission to the Right Honorable the Governor General in Council, the accompanying copy of a report by Mr. Commissioner Lushington, on the results of the mining experiment conducted at Pokhree in Ghurwal.

I have the honor to be, Sir,

Your obedient humble servant,

R. N. C. HAMILTON,

Officiating Secretary to the Govt. N. W. P.

Agra, the 16th December, 1841.

No. 88.

To the *Officiating Secretary to Government, North West Provinces, Revenue Department.*

SIR,—I have the honor to return the report on the Pokree mining experiment received back with your letter of the 8th November, the omissions adverted to having been supplied.

2. I am not aware of there being any inaccuracies in the report in its present state, but should any be discovered, I would beg the favor of their being corrected in your office if possible.

I have the honor to be, &c.

(Signed) G. S. LUSHINGTON, *Commissioner.*

*Kumaon Commr's Office, Camp Reonee, }
The 17th November, 1841. }*

Account of the experiment carried on at the Pokree Copper Mine, Ghurwal, under Mr. Wilkin, with notices of other Copper Mines in that district.

In the 83d Number of the Journal of the Asiatic Society, is an account, by Captain H. Drummond of the 3rd Light Cavalry, of some of the Kumaon copper mines visited by him ; this account was drawn up agreeably to the orders of the Governor General of India, and extracts from it were published for general information. In this report Captain Drummond suggested, that with a view of obtaining more correct details than were then forthcoming, as to the advantages or otherwise, of working any one of the Kumaon or Ghurwal copper mines under European superintendence, a certain sum should be advanced by Government for an experimental opening of such mine as might appear best suited to the object in view. This proposition received the sanction of Government in November* 1838, the sum of Rupees 2415 was allotted from the public treasury, being the amount of an estimate submitted by Captain Drummond, and the charge of the experiment was assigned to Mr. Wilkin, an intelligent and respectable Cornish mining assistant, who had accompanied Captain Drummond from England. Mr. Wilkin's personal salary was at the same time fixed at 150 rupees per mensem, by orders of the Governor General.

The mine selected, agreeably to Captain Drummond's and Mr. Wilkin's opinion as the scene of operations, is situated near the village of Pokree, pergunnah Nagpoor, Ghurwal, and is generally known by the name of the Pokree mine. The village of Pokree, is distant from Almorah about eighty miles (say seven marches) North, and about seven or eight miles ; on the right, or Northern bank of the Aluknundah river ; from Sreenuggur it is about fifty miles, or from four to five days' journey for a loaded man. The elevation of the Deothal temple, or as it is commonly called Deothan, above the village of Pokree, is given by Captain Webb at 6,288 feet ; the village is, I think, about five to six hundred feet lower, and the mines in its vicinity range from the latter to the former altitude.

* Letter from the Secretary to Government to the Commissioner of Kumaon, dated 26th November, 1838.

The climate is excellent, admirably adapted to the European constitution ; water good, and oak,* fir and other timber trees abundant. The soil of the neighboring villages is good, and the crops are of the usual kind. The roads also from the mines to Almorah, the capital of Kumaon Proper, and to Sreenuggur, the capital of British Ghurwal, are perfectly safe for foot and horse travellers and loaded porters, and though rudely and unskilfully constructed, are kept in good repair by the civil authorities.

In going to Pokree from Almorah or Sreenuggur, the traveller has to cross the *Aluknunda* river by a jhoola, or swinging bridge of rope, constructed of the grass or sedge, termed *bhabur* by the natives, and the botanical name of which is *Criophorum canabinum*.† There are now on that route two of these jhoolas erected over the Aluknunda, one of which is situated at Kumpryag,‡ where the Pindur and Aluknunda rivers unite, (thus forming one of the Pryags, or holy unions,) and the other at Buniote,§ about five miles lower down. The ascent from the hot valley of the Aluknunda to Pokree is steep and rugged, but the road is safe, and the traveller is amply compensated for the fatigue and labor of the ascent, by the beauty and picturesqueness of the scenery, and by his transit from the hot stifling atmosphere of the valley to the pure and salubrious temperature of the surrounding mountains. Nor could he fail, if interested in such studies, to admire the vast and instructive series of vegetable forms that meet the eye in the ride up from the river ; for, leaving the mangoe, peepul, date, and other well known tropical trees at the base, he passes by degrees into the vegetation and climate of European or temperate countries.

The Pokree mines had for many years been known and worked during the rule of the Hindoo Rajas of Ghurwal, and when the latter were driven out by the Ghoorkhas, the Nepal dynasty did not overlook the resources of wealth which these mines were supposed to con-

* Oak and fir were the only woods made use of in the mine by Mr. Wilkin, the oak for frames and the fir for planking. There are three kinds of oaks, the (bauj,) 1, (phuliart) 2, and (tilouj) 3 at or near Pokree, and one fir. The oaks are the (*quercus*) 1 *incana*; (*camlossa*) 2, and (*semicarpifolia*) 3 of botanists. The fir is the *pinus longifolia*, and as the wood is highly resinous, matches of it are used in lieu of candles in the mines, also as torches in travelling.

† Royle's Illustrations, page 415.

‡ Elevation of the Kumpryag rope bridge, 2436 feet above the sea, (Capt. Webb.)

§ Elevation according to Capt. Webb, 2294 feet.

tain. It is, however, impossible to ascertain with accuracy the amount of revenue yielded from the Pokree mines, under the Hindoo or Ghoorkha* rulers. In the absence of authentic records, tradition has stepped in, and the result is, as usual, gross exaggeration and hyperbole. The older miners of the place, some of whom are still extant, assert, that one of the mines one year yielded 50,000 Rupees profit. How much of this account is true I have no means of ascertaining, but this much is certain, that from the time of the Ghoorkha conquest of Ghurwal, (1803,) up to the year 1838, the produce of the Pokree mines had become more and more scanty, and that when, (towards the close of the above year,) these mines were handed over to Mr. Wilkin, the actual revenue at which they were rated in the public accounts amounted to 100 rupees per annum, and this small sum was eventually remitted for that year, owing to the poverty and utter inability of the farmer to pay the Government demand.

Mr. Wilkin commenced operations in December 1838, and from that month to the end of June 1841, the works were carried on under his constant superintendence, with more or less vigor.† The progress made in excavating the adits, varied at different seasons. It appears to have been smallest during the rains, when frequent "break-downs" took place in the mines, and at other seasons the hardness of the ground and scarcity of workmen prevented much progress being made. The total amount of work, according to the returns sent in by the assistant, and expenditure incurred in making them is, as follows:—

* In Mr. Traill's Account of Kumaon, (Asiatic Researches,) I find 4801 Rupees only given as the Jumma fixed by the Ghoorkha Government of 1812, for the whole province of Kumaon and Ghurwal, under the head of "mines and mint duties." The Ghoorkha rupee was worth about 12 annas, so that in Company's Rupees the sum was only 3600 Rupees. This, however, was merely the Government revenue accounted for by the Nepalese Soobahs to the Katmandhoo Government, what else may have been levied from the former, under the heads of Bhent, Nuzerana, &c. &c. I cannot pretend to say. From the year 1815, (conquest of Kumaon) the revenue derived by the British Government from mines has averaged as follows:—

Kemaon Proper. Ghurwal.

Copper,	Rs. 12,00	to Rs. 801,	Rs. 2,086.	Highest mining revenue of
Iron,	1,905	226.	the province, Rupees 5,417.

† The workings were carried on night and day, the laborers being formed into gangs, and relieved at fixed hours. Tools were supplied from the magazines, whilst others were made up by Mr. Wilkin's smiths and carpenters; the whole of these expenses are included in the abstract, except the value of the magazinic tools, and one or two barrels of gunpowder expended in blasting.

		Fms.	Ft.	In.	Rs.	As.	Ps.
Progress in December, 1838,		0	0	0	44	11	9
Rajah's Mine—	January, 1839,	17	0	0	153	9	0
Chowmuttee ditto. }	February, ..	12	0	0	136	2	0
	March,	10	0	0	125	0	0
	April,	10	1	6	* 213	4	0
	May,	8	4	0	127	1	10
	June,	1	3	0	130	14	0
	July,	4	3	0	80	9	0
	August,	3	2	0	73	8	0
	September, .	2	0	0	120	4	8
	October,	8	1	7	135	15	4
	November, ..	14	3	0	141	2	8
	December, ..	13	4	0	112	5	0
Total,..		106	3	1	1,594	7	3
January, 1840,..		13	3	6	151	13	10
February,.. ..		14	0	0	143	10	6
March,		11	0	0	160	12	0
April,		19	5	2	162	10	3
May,.. ..		19	4	9	103	5	10
June,		3	1	0	54	10	6
Operations suspended and repairs made to frames.	July,	0	0	0	56	15	0
Ditto ditto.	August,	0	0	0	17	6	0
In this month the Adit, Chowmuttee adit, broke down at 40 fathoms from the entrance and was partially secured.	September, ..	0	0	0	16	5	0
(Same remark,) ..	October,	2	0	0	42	5	0
Chowmuttee Adit reopened and partly repaired, and new ground excavated to the extent of,	November, ..	0	3	0	96	2	0
Repairs completed and in new ground Adit driven.	Total,..	190	4	6	2,600	5	4

The amount originally authorized by Government having by the end of November 1840 been expended, a reference was made to the Honourable the Lieutenant Governor, as to the propriety of continuing the workings, and the point having been submitted for the

* In this is included, 60 to 70 Rupees for carriage of materials from the Delhi magazine.

consideration of the Right Honourable the Governor General, it was resolved, that a further sum of 1,000 rupees should be advanced for the prosecution of the experiment in the Chowmuttee mine alone. Mr. Wilkin's personal salary of Rupees 150, was also sanctioned for nine months further, commencing with October 1840, and ending with June 1841.

I annex a Table of progress and expenditure for the above period, *i. e.* from December 1840 till the end of June 1841, when operations finally ceased.

	Progress.			Rs.	As.	Ps.
	Fam.	Ft.	In.			
December, 1840,	7	1	0	74	9	0
January, 1841,..	8	0	0	87	14	0
February,.. ..	14	0	0	86	4	6
March,	11	0	0	120	4	0
April,	5	3	0	105	6	0
May,.. ..	12	2	0	125	6	3
June,	8	5	5	164	4	1
Total,..	65	11	5	763	15	10
Add former workings,..	190	4	6	2,600	5	4
Grand Total,..	257	3	11	3,364	5	2

The workings above specified were carried on in three different mines, two of which had been worked in the time of the Hindoo Rajas, and one was entirely new. The names of the two old mines re-opened, and worked by Mr. Wilkin were: 1st, the Chowmuttee; 2nd, the Raja's mine; and the following account of the mines and operations carried on in them is contained in a report from Mr. Wilkin, dated July 1841, and which as it also conveys interesting information concerning other Ghurwal mines, I may be excused for quoting almost entire.

“The Chowmuttee mine at Pokree, is situated in talc which rests on dolomitic limestone. It was adopted for the Government experiment, as the one in which ores were most likely to be found near the surface, where the experiment would be least likely to interfere with the revenue, and where the inhabitants were most favourable to the introduction of a new system. The experiment was commenced at the end of 1838, and has been continued to the

present time. During this period, an adit has been driven into the mine on the course of the lode 77 fathoms, 0 feet, 8 inches, and an underlying shaft was sunk on it at 28 fathoms from the entrance; a cross cut has been driven north from this shaft 20 fathoms, 4 feet, 0 inch through dolomite quartz, and talcose schist; but without finding any new lode, excepting a small bed of iron ore. A rise of seven fathoms was driven up from the adit at sixty-one fathoms from the entrance, and a diagonal shaft was sunk to meet the rise from whence a gallery has been extended eastward over the adit, 19 fathoms, 2 feet, 4 inches, of which 8 fathoms, 5 feet, 0 inch is in poor ground; 4 fathoms, 0 feet 0 inch in old workings, and 6 fathoms, 3 feet, 4 inches in ground, which in Cornwall would be worked for one-third of the ores. Of the adit, 5 fathoms, 3 feet, 0 inch were in old workings; 42 fathoms 4 feet, 2 inches in ground that would on an average let for one-half tribute, and 16 fathoms, 2 feet, 6 inches in ground that would not pay for working, besides 12 fathoms, 3 feet, 0 inch of the outer part of the adit, in which no ores were found; very little ores have been left visible in the bottom of the adit or the eastern end of the mine, but the mine may improve if sunk deeper or extended further; however, I should prefer working the western part of the mine, where the lode is wider, and the ores of better quality. A ventilating passage was carried forward over the adit from the first mentioned shaft to the rise, and a winse was sunk under the adit three fathoms; besides which, other excavations, amounting to about twenty fathoms of ground were made, and conveniences for clearing ores, workshops, &c. have been built. The expense incurred by this part of the experiment (omitting European superintendence,) has been Rs. 2,846: 8: 9, and the return of copper is Rs. 231: 4: 4, besides 3 to 400 Rs. which may be expected from ores yet unsold. The roof of the adit now offers a good field for tributers, and if worked on a proper scale, it may repay the expense which has been incurred in driving it; but it is not likely to do so without machinery for cleaning and smelting the ores, which generally contain only 2 or 3 per cent. of metalliferous ores, or from $\frac{1}{4}$ to $\frac{3}{4}$ per cent. of copper.

“The Chowmuttee lode, after crossing the ridge east of the mine, enters a very compact bason, in which is situated the Doomed Mine; this mine has not been worked to any considerable extent,

owing to the abundance of water, and softness of the talc; but it is said to have a good lode in one part of it, the lode then crosses the hill near Deothan, a small village above the mine, and is found near Googlee and Reswarra, where I have seen ores extracted from it; but I do not think it likely to be profitable on that side of the hill.

“The Raja’s mine is situated about 450 yards north of the Chow-Raja’s Mine. muttee mine in common dolomite, which rests on talcose schist. It seems to have been discovered by the out-crop of copper in the precipice above the Pokree village, and to have been followed down to a depth of 70 fathoms, at which level an adit was brought into the mine, which must have been driven 100 fathoms through dead ground, (*i. e.* in which no ores are found,) ere it reached the copper formation; how far it had been driven beyond that cannot be ascertained, but the old miners state it to be a considerable length. There are other adits, by which the mine was worked previous to the bringing in of the deep adit, and the next one above it is said to have been the principal entrance by which the ores were brought out. At the time when the adits fell together, which occurred about 60 years ago, there were three places in which ores were found: namely, the Gaja Chauk, Kumera Chauk, and the Burtwal Kooa; the Gaja Chauk was entered at the level of the deep adit, and worked on so large a scale, as to require timber 20 feet long to support the roof, and finally it became so large, that the miners contented themselves with picking up, at the risk of their lives, the ores that fell down from the roof, until it all fell in together. The Burtwal Kooa was probably on the same lode as the Gaja Chauk, under the level of the adit. The Kumera Chauk was probably on another lode, (Kumera being the name for talc,) the ores of that lode being muddy and requiring to be washed. The produce of the mine at the utmost is said to have been 300 seers of ores, worth 25 per cent. of copper per day, of which the Raja claimed two-thirds, and the remainder was shared by the laborers, who also held land free of rent. This was the best mine in the province, and the old inhabitants of Pokree always spoke of it as a place of great riches. The adit was allowed to fall together during a dispute between Raja Sackrit and his brothers, and though an attempt was afterwards made to open a new adit near the old one, it was never

completed. On my arrival here I commenced opening the second adit, (*i. e.* the one next above the deep one,) but found it too expensive for the limited means at my disposal; and it was abandoned after being opened and secured with timber 31 fathoms, 1 foot, 6 inches, at an expense including native superintendence and materials of Rupees 346 : 12 : 8. To open the mine properly, both adits should be repaired, and two new shafts sunk from the surface into the mine, which would cost about 4,000 Rupees, and it would be necessary for the proper working of the mine. No information can be obtained as to the number of lodes in this mine, but I think there are three, on the north one of which the new mine is situated, about 60 fathoms north-west of the Raja's mine."

"In the new mine the lode was very promising, and yielded good
New Mine. specimens of ore near the surface, but at a depth of 15 fathoms it became poor, and was consequently abandoned, after being extended 23 fathoms, 3 feet, 0 inch, at an expence, including native superintendence and materials, of Rupees 245 : 11 : 0."

In addition to the above three mines, in which Mr. Wilkin's operations were carried on, there are several other copper mines in the vicinity of Pokree, some of which were worked in former times by the native miners, and some again have never been tried. None of these were attempted by Mr. Wilkin, but I find on his report the following notices of them, and as the opinion of the practical miner must be infinitely more valuable and satisfactory than any remarks that I could offer, I consider it right to extract them.

"Nota mine is situated about two and a half miles north-west of
Nota Mine. the Pokree mines, in talc, which rests on dolomite limestone. The lode is a bed of yellow or buff coloured talc, about four feet wide, dipping north-west at 50°; it rests immediately on the dolomite limestone and has a sulphuric effervescence on the surface. This mine is said to have been rich; it is situated on the western side of an extensive bason or valley, on the eastern side of which ores have been turned up by the plough, but no mine has been worked. This is an extensive field for mining, as the lode may be productive throughout the bason or valley. There is wood and water for all purposes near this mine.

“The Thala mine is situated about a mile north-west of the Nota mine, probably on the same lode, in an extensive plain, or comparatively level surface. It was first worked in 1810, and again in 1825; but there being no good facility for adits, the water prevented its being worked to any considerable depth. The miners who worked it state the ores to be copper pyrites disseminated in a lode of two feet wide, one-fifth of which was metalliferous. An adit of fifty fathoms in length would reach the mine ten fathoms below the surface; below this adit a machine might be erected, which with the surface water and that of the mine would continue to work throughout the year, and keep the water of the mine to a considerable depth. There is plenty of wood for all purposes in the neighbourhood of this mine.

“The Danda* mine is situated on the hill, about 500 yards above Thala mine in chlorite slate and talc, which on the north-western side, comes in contact with common dolomite. This mine has been worked to a considerable extent, and is said to have yielded 52,000 Rupees profit in one year. The ores are of good quality, and found in three or four different beds or lodes, which dip into the hill at an angle of 30°. The chlorite slate, in which the beds of talc and ores are found is so hard as to stand without timber; it also contains finely disseminated copper in small quantity. The lodes run into a fine fall or bason westward, in which, I think, they would be found productive. There is abundance of wood near this mine; but no water for machinery nearer than the Thala mine.

“The Talapoongla mine is situated about a mile north-east of the Danda mine in talc, which rests on dolomite limestone. The strata, in which the ores are found, is about six fathoms wide, dipping south-west at various angles. The bed is extensive, but the ores are scarce; however this might improve at a distance from the surface; hitherto little has been done, except washing away the strata during the rainy season. It has good facilities for wood, water and adits. Ores have been found in a pre-

* A ridge or crest of a hill is called Danda in the hill language, and this mine being on the ridge, gets the above name.

cipice, east of this mine, near the village of Bungtul, but at present the outcrop is covered with rubbish ; it is in the talcose formation, and has good facilities for working.

“ The Khurua mine is situated in the ravine below Bungtul, near its junction with the Nugol river in talc; it was discovered by the water of the ravine washing away the strata, and leaving a quantity of ores exposed to view ; these ores were taken away by the Pokree miners, and the mine worked five or six fathoms under the surface, beyond which they were prevented from going by the water. They tell me that the lode at the bottom of the mine for two fathoms in length is one foot wide, of solid copper pyrites. Of late years, nothing has been done at this mine beyond washing among the surface, which contains a small quantity of copper pyrites. There is plenty of wood in the neighbourhood of this mine, and water for machinery, but no facility for adits.”

Such is the account given by Mr. Wilkin of the copper mines at, and in the vicinity of Pokree, the whole of which he has repeatedly visited and examined, as far as the nature of the ground would permit. Of other copper mines situated in the Ghurwal district, the most celebrated are the Dhunpoor* and Dhobree mines, the former being on the north, the latter on the south side of the Dhunpoor chain of mountains. This chain, rising to an altitude of 9,500 feet above the sea, is on the south or left bank of the Aluknunda river, directly opposite to the Pokree hills, and to the great Himalyan chain, covered with eternal snow. The view from the crest of the Dhunpoor, ridge is beyond description beautiful and majestic. The great castellated peaks of Budrinath rise directly in front of the spectator, and on either side of these as far as the eye can reach, appears a long succession of other snowy peaks ranging in form and altitude ; but all and each surpassingly grand and sublime. No view that I know of in Switzerland, equals this in vastness and extent ; and in altitude the peaks of Gungotri, Kedarnath, and Budrinath to the left, of Trisool,

* These mines are leased to a farmer at the sum of 1,900 Rupees per annum. Some villages are attached to the mine, and the land revenue derivable from them is included in the above. It would amount to about 200 Rupees per annum as a separate item. The inhabitants of the villages work in the mines, and receive a share of the produce ; they are what Mr. Wilkin calls “ tributers.”

Nundadevi, Purychoola, and Kylas to the right, fully merit the title bestowed upon them by the Shastra,* of "Mountain Kings." Mr. Wilkin reports, that "the Dhunpoor mine is situated on the north side

Dhunpoor Mine. of a high† and precipitous range in compact dolomite." The ores of this mine are principally copper pyrites and grey or vitreous copper ore with the red oxide, and green carbonate in smaller quantities: the latter being scarce. The ores are found in a bed, (or channel of ground fifty or sixty feet wide,) which runs nearly north and south, and underlies east about one foot in the fathom. It is divided by a bed of potstone or indurated talc, which runs through the copper formation longitudinally, conforming to the strata, and having a frith or *flukan* on the western side.

"This lode of potstone will facilitate the driving of passages into the mine, and it is sometimes productive; but the greater part of the ores are found in the adjoining rock in seams and branches, which cross it in every direction. The seams of ore are said to be one foot thick at times, but generally they are less than one inch thick, and any thing more than that is considered a prize by the miners. When I visited the mine in 1838, the best seam or vein which I saw was not more than half an inch thick; but on my last visit in 1841, I saw one two inches thick, and I was informed that it had been one foot thick during the interval between my visits. It is perpendicular, and cut out at the bottom of the working by a horizontal vein which carried it eastward; the ores are mostly within one foot of the horizontal vein, above which it dwindles away to the size of a reed. All the other places which I saw, were poor in comparison to this. The ores are the softest part of the rock, and are consequently dug out first, after which the miners burn the rock with wood and then throw water on it. Owing to the calcareous nature of the rock, this process facilitates the work considerably; but still I think blasting would be cheaper, as the burning does not penetrate beyond a few

* Captain Webb gives the following altitude of the Dhunpoor village, 7,956 feet; the mine is a few hundred feet higher, and the ridge above the mine in some places is rated at 9,500 feet above the sea.

† The repeated allusions to the great Himalyan chain in the sacred books of the Hindoos, are too well known to require quoting. The names assigned to some of the peaks are, I think, appropriate and poetical: such as Kada-nath, Lord of water; Roodra-nath, Lord of the Roodras or Demi-gods.

inches in the rock, and the passages are consequently small, except when two or more veins meet. The veins are so numerous, that the rocks between them are seldom more than 3 or 4 feet thick, so that it would certainly be better to have a large working, which would include a number of veins, than to work on the present diminutive scale. The mine is so full of rubbish, that it is difficult to get through the passages, for nothing is brought out of the mine but the ores, and the rubbish being left within, fills up the mine and impedes its future working. At the present lowest working of the mine, there is a commodious passage on the claystone lode, 60 fathoms in length; but the outer 20 fathoms has crushed together; below the inner end of this passage, there is an extensive old working, which is said to be rich, but the present generation of miners have never been able to get the water out of it; beyond this, the mine has been worked to a considerable extent, but the passages were so full of rubbish, that I could not go into them. An attempt was made to bring in a new adit to drain the mine to a deeper level than at present, previous to the Ghoorkha rule; but after being driven 15 fathoms, it was abandoned owing to the ores in the mine failing, and the laborers being sent to the Nagpoor (*i. e.* Pokree) mines, which were then rich. No attempt has been made since then to drain the mine below the level here spoken of. The lessee informed me, that he formerly realized from three to four thousand Rupees per annum from this mine, but that lately, the profits have been very small. I am unable to give a correct section of this mine, but the following will convey a tolerable idea of its leading passages, and the rest may be considered a perfect honeycomb from entrance to end.*

“There is water for machinery in the ravine below the mine. Wood for all purposes is rather distant, but owing to the supply of labour, charcoal is cheaper here than at Pokree, where the wood is nearer. The smelters at this mine are very industrious and expert at their work, and their mode of smelting is superior to any other in the province, excepting the Dhobree people, who work on the same principles, using abundance of decomposed felspar and limestone flux.

* As there is nothing of interest in this sketch we have omitted to copy it.—EDS.

“The Dhobree mine is situated on the south side of the Dhunpoor range, in very nearly the same kind of rock as the Dhobree Mine. Dhunpoor mine; but in this mine, most of the veins are horizontal, running along the side of the hill. At the surface they are very small, containing oxide of iron and green stains of copper, and occasionally copper pyrites. The present working mine is not extended very far from the outside of the precipice or surface, the ores being much the same near the surface as at a distance from it. When the miners find their passages growing long and tedious, they begin outside on a new vein. There are several old mines west of the Dhobree village; on entering one of them, I found it very extensive, the ores seem to have been most abundant where the horizontal vein was crossed by perpendicular ones; but as far as I went, the whole of the horizontal vein had been taken away, and often crawling to a considerable length, I was obliged to return for want of torches. I got a small specimen of ore from one of the perpendicular veins, of which there were two or three running south-east and north-west. The western one of these veins is said to have been very rich, but it fell in about the time* the Ghoorkhas entered the province, and has not been opened since. The ores of these mines are principally copper pyrites, worth about 25 per cent. of copper.

“There is water for machinery about a mile and a half below the mine, and wood for all purposes near that place. There is another mine on this range at Molghirree; it is rented at 25 Rs. per annum, and said to be in the same rock as the Dhobree mine. There are other mines of both copper and iron in Dhunpoor, but none of them are worked, nor have I seen them.”

From the following memorandum, it will be seen that the experiment conducted by Mr. Wilkin has entirely failed, as far as a profitable return for the capital expended is concerned.

Memorandum of expenditure on account of the Government experiment at *Pokree* :—

Paid to Mr. Wilkin from the Almorah Treasury,

Rs. 3215 0 0

* 1790.

Expended in working the mine as per monthly statements,.....	Rs. 3364	5	2
In which is included value of Copper sold by Mr. Wilkin, and carried to account, amounting to,	149	5	2
Total expense to Government, _____		3215	0 0
Deduct value of Copper sold and paid into Treasury,.....	272	3	3
Ditto of Copper sold, but not yet realized, _____	358	0	0
		630	3 3
So that when this last item has been realized, the stand thus:—	Expended,	3215	0 0
	Returns,	630	3 3
		2584	12 9
Balance against the Experiment,		2584	12 9
Exclusive of the cost of European Super- intendence, at the rate of 150 Rs. per month for 32 months,		4800	0 0
	Total Rs.	7384	0 0

This result is in my opinion to be attributed solely to the poorness* and scarcity of ores found, and not in the least to any want of skill, zeal, or patience on the part of Mr. Wilkin, of whose intelligence, activity and trustworthiness I have a very high opinion, and every mining undertaking is, after all, more or less a lottery. In this particular instance, every thing has, I conscientiously believe, been done that was practicable with reference to the means placed at the superintendent's disposal, and if the result has been a failure, it cannot in fairness be attributed to him. If it be urged, that the fact of the Raja's and Chowmuttee mines having been worked in former times, ought to have suggested the probability of the lode being exhausted, it should not on the other hand be forgotten, that the sum placed by Government at Mr. Wilkin's disposal was not sufficient to warrant his devoting the whole of it to a new mine, which after all might have proved equally barren as these. Native accounts represented these mines to have been rich and productive at the period of their abandonment, and the miners of the place still hold to this belief. Nor was it in the first instance suspected, that the mine had been so far penetrated into

* Poor, with reference to the means of smelting.

as has been proved. Taking these points into consideration, I see no reason for believing that course adopted was injudicious.

The failure of this undertaking renders it impossible for me to record an opinion in favour of fresh experiments being made under European superintendence at Pokree; I fear no such experiment could pay at that place, and with regard to the copper mines of the province generally, I have reluctantly come to the opinion, that they do not present a fair field for the employment of capital on the following grounds:—

1st. The great distance of the Pokree and other copper mines of Ghurwal from the markets to which their produce would have to be brought.* 2d. The absence of water carriage, and slowness and expense of carrying articles of bulk in a country like Ghurwal. 3d. The non-existence of coal and the cheapness of English copper, carried as it is entirely by water to the great commercial towns of Upper India. The above circumstances would, I apprehend, be insuperable obstacles to the success of any speculation of the kind. For supposing even that a rich and abundant copper mine should hereafter be discovered, and that by European superintendence and the aid of machinery, great improvements were made in every process of mining,† and the price of the article (which now sells at the door of the mine at a dearer‡ rate than English copper does in the plains,) were to be greatly reduced, I still think, that the cost of transporting it to a good market would absorb all returns, or leave little profit to the speculator—further that this profit would be in the course of a few

* The copper mines of Kumaon Proper, at Seera and Gungoolee for instance, are also, all situated far in the interior of the mountains. The talcose and calcareous formations in which the ores are found, occupy the high precipitous mountains, which (in this province at least,) separate the mica slate, gneiss, and not unfrequently granite of the central hills from the similar rocks which build up the buttresses and compose the peaks of the great Himalayan chain. This mighty chain itself appears to be partially metalliferous, judging from the lead mines at Ghertee (now waste) between Melum and Neetee, the copper indications at Tola and elsewhere in the Jowahir Pass, and the ores of the latter metal and of iron actually found and worked at and about *Polan* in the immediate neighbourhood of Roodurnath, one of the snowy shrines between Kedernath and Rudrinath.

† The washing and smelting of rich ores under the native system costs 50 per cent. Poor ores do not pay.

‡ Wrought copper sells in the hills at 1 Rupee 12 Annas to 2 Rupees per seer, equivalent to 70 to 80 Rupees per maund. English copper can now be brought at

years (if operations were carried on to a large extent) cease, and the works be abandoned owing to the non-existence of coal. This is not a mere conjectural hypothesis, but rests on what has already occurred, and will again occur in this district. Even under the present petty system of operations, many mines have been abandoned from this cause. The following is an instance of the kind. In the valley of Kheisaree, the northern extremity of which forms the boundary between Kumaon and Ghurwal, iron ore of a good quality is found in great abundance, and many mines have at different times been worked by the native miners, who resort thither annually from the eastern purgunnahs. At present, the chief supply of iron in Kumaon is from these mines, yet although the total quantity produced would with reference to the gigantic scale of English transactions appear perfectly ludicrous, the valley has notwithstanding become nearly denuded of trees, and it is only by shifting about to new sites, less removed from the forest, that operations are now carried on. The extensive pine woods of the Doorgadhee and Jowrasee range, even at the distance of five and six miles from the mines, are now beginning to experience indiscriminate havoc at the hands of the charcoal burners, who cut down and leave to rot on the ground thousands of fine trees, merely consuming the smaller branches, (to save themselves the trouble of splitting the large trunks,) while no provision is made for the renewal of the forest.

As compared with the Pokree and other mining localities of Ghurwal, the Khetsaree valley is, in many respects favorably situated, being four days nearer to Chilkea, to which mart the route is almost entirely through a level country, and bisected by the Ramgunga river, the power of which, and some of its nearer affluents, would be ample for every kind of machinery. Limestone too exists in great plenty, and in skilful hands, would doubtless be turned into large use in the reducing processes. The climate, however, in the valley itself, is unsuited to the European constitution, and until the last few years

Almorah at a less price than the hill copper, the *present* price of the former being 1 Rupees 10 Annas per seer, of the latter 1 Rupee 12 Annas to 2 Rupees.

By recent quotations, the price of imported copper at Calcutta is shewn to be as follows; viz.

Sheathing, per Factory maund,	36	12	to	38	0	Sicca Rupees.
Brazier's,	36	0	to	0	0	„
Old Copper,	37	8	to	37	12	„
						3 Q

during which its surface has been gradually drained and brought under tillage, it was considered scarcely habitable to natives. But as the surrounding heights afford salubrious sites for residence, and as population is fast increasing in the valley, an experiment would in all probability succeed at Khetsaree, if to its other advantages could be added a sufficiency of fuel; but the forest is rapidly disappearing, and burnable coal is as yet unknown. It is true, many *indications* of the latter fossil have been found in the Sub-Himalayan ranges, as for instance at the Bullea bridge between Bheemtal and Bhoumouree, and in the streams which issue from the hill north of Nujeebabad; yet the few poor and immediately exhausted seams of lignite here and there discoverable in the sandstone strata, and upheaved debris of the Sewalics between the Jumna and Ganges, and again between Hurdwar and Bhoumouree, would seem, if *showing anything*, rather to point to carboniferous beds buried far beneath the base of the lower ranges, than to hold out hopes of their existence near the surface of the secondary rocks, or among the primary formations, where the iron and copper ores are developed.

If happily and unexpectedly, real coal, fit for consumption, and in sufficient quantities, should hereafter be found in the strata opened to view by the Bullea and other streams issuing from the southern face of the Ghagur mountains, or by the Kosilla and Ramgunga in the lower part of their course, the iron mines of Ramghur, now second in importance to Khetsaree, would become of great value; the noble steppes of the Ghagur would be spared from the denudation which now threatens them; and as the intermediate country is easy, and opposes few obstacles to the formation of roads, the mines of Khetsaree would share in the benefits of the discovery.

I have thus enumerated the great obstacles to the success of any mining enterprize of the kind under discussion. On the other hand, there are some considerations to which I proceed to advert, which might at first sight appear to warrant a contrary conclusion. I first allude to the possibility of obtaining a sufficient supply of labor; and secondly, to the character of the people. 1st. With regard to labor; of this I think the supply would be found to be sufficient at the rate of 2* to

* Two annas per diem is the usual rate of hire, but to ensure a constant supply, it would probably be found necessary to raise it to 3 or 4 annas.

4 annas per diem, as none of the hill men appear to have any objection to working in the mines as labourers. The mining, or Aguree caste is, it is true, one of the lowest, but Brahmins, Rajpoots and Khasyas do not object to work as labourers in the mines. I have seen all of the above castes working under Mr. Wilkin at Pokree of their own free will, and have myself often employed them when in the district (also of their own free will) in duties which in the plains, are usually performed by coolies; such as digging, cutting wood, fetching materials for building, &c. 2ndly. With regard to habit and disposition of the people, the natives of Pokree, and generally speaking, of Ghurwal, are docile, good humoured and willing, inferior in point of physical strength to the European; but still capable of performing a very fair amount of work, if well looked after. In common with most Hindoos, they possess the great virtue of sobriety, and for honesty, are remarkable. Nor are they long in acquiring the use of European tools, even of the pit-saw, the manner of working which is so repugnant to native ideas of ease and convenience. With regard to crime, I may state, that robbery, murder, and, generally speaking, all heinous offences, are rare in Ghurwal. I know not how it is, whether it be owing to the nature of the country, the scantiness of the population, to amiability of temper, or want of energy* and spirit; but this fact is certain, that violence and a recourse to bloodshed seem to be almost unknown. If two Ghurwalees quarrel, they seldom proceed to blows, or should a fight actually take place, it is not of that sanguinary and reckless kind which occurs so frequently in England and elsewhere: such are the bright traits of the Ghurwalee character. On the other hand, they are credulous, ignorant, and superstitious to a degree; believing in ghosts, the evil-eye and witchcraft, and by no means remarkable for a love or practice of truth, where they consider it their interest to speak falsely. Still on the whole, weighing the good against the bad, I have often been struck by the many excellencies of their character, and strange though the statement may appear to be, I have at times felt inclined to believe, that compared with similar classes of our own country,

* I do not think the Ghurwalees are wanting in courage, and believe they have proved themselves efficient as Sipahcees in Cabool, where many of them are serving in H. M. Shah Sujah's Force.

with all its boasted knowledge and civilization, they would present as many points for approbation as the latter.

I will conclude this report by shortly summing up what I take to be circumstances *for* and *against* the success of any mining speculation in this province. The obstacles are: 1st, distance of the mines from the low country; 2ndly, slowness and expense of carriage; 3rdly, cheapness and abundance of English copper; 4thly, superficiality of the mines yet known; and 5thly, want of coal.

The favourable points of view are: 1st, the excellence of the climate, and 2ndly, the quiet habits and tractable disposition of the people. To my judgment, the reasons urged against the employment of capital appear greatly in excess of those in its favour. If I had funds of my own lying unemployed, I would not, with the knowledge I have of the circumstances of the case, invest them in any enterprize of the sort. In stating this much, I would add, that I am by no means anxious to deter others from embarking capital in a new experiment, should they, with reference to the account of progress, expenditure and returns now submitted, be of opinion, that my view of this matter is incorrect, and that different results would have been obtained, had the expenditure, or first outlay consisted of thousands, instead of some few hundreds of pounds.

(Signed) G. T. LUSHINGTON, *Commissioner*.

P.S.—Specimens of copper ores from the *Pokree* and all other copper mines of this province have been called for, and will be submitted when received, with names of mines, pergunnahs, &c. &c. My report of 7th June 1839, forwarded to the Secretary of Government N. W. P. at Agra, was accompanied by tabular statements, shewing the number of mines, and amount of revenue derived from them in Kumaon and Ghurwal, and can be referred to, if necessary.*

* We have applied for a copy and permission to print this.—Eds.

Brief History of Kalat, brought down to the deposition and death of Mehrab Khan, Braho-ee. By Major ROBERT LEECH.

INTRODUCTION.

It had been my intention to delay writing on this subject, until I could procure a written history of the Ahmadzyes, which I have reason to believe is in existence, and until I could obtain a collection of national ballads from the hereditary Brahoee *sha'ars*, or minstrels; but the interest at present felt in every thing relating to Balochistan, arising from the disturbed, and to many no doubt, inexplicable state of affairs in that country, has induced me, perhaps prematurely, to attempt the task; and for being able to perform it I am chiefly indebted to a Persian manuscript, drawn up in the summer of 1838 at my request, by Myan Sibaghatulla, Sahabzadah of Sarhind, whose family had been settled at Kalat for nearly 50 years.

Mistakes will no doubt be found to exist, as I have had no opportunity of corroborating the original accounts, but I am confident they will all be found, if any, in the early history, and thus only be liable to mislead the curious antiquary, and not the operative politician.

Cabool, 1st June, 1841.

P. S. Myan Sibaghatulla, it must be told, while at Kalat, was a partisan of the wakeel's family.

The word Kullat, in Arabic, signifies a mountain-top: and the word Kalat, in Persian, is applied to a fort built on a commanding eminence; in this sense there are three Kalats familiar to the natives of Central Asia; viz. Kalat-i-Nadio to the N. E. of Mushud; Kalat-i-Ghilzye to the E. N. E. of Candahar; and Kalat-i-Nasseer, the capital of Balochistan. In the Balochee language, which is corrupted Persian, Kalat is applied to a fort in general, and here it is used *par excellence* as "the fort."

This fort was formerly known as Kalat-i-Sewa, from a former Hindoo ruler, by name Sewamal: and his being known by this name militates against the supposition entertained by Pottinger, of Sewa being an hereditary title in the

family, which is reputed to have been of Rajpoot extraction, and Sewa's title was therefore no doubt the military one of Singh, and not the mercantile one of Mal.

The Afghans know the place merely as Kalat-i-Baloch; and in the royal letters patent and mandates of the Kalat-i-Baloch. Duranee kings, the small place of Neecharah is entered with it, as "Kalat-wa-Neecharah," in compliment to the tribe of Neecharahs, who include themselves in the Alakozyes, and boast that their village of Neecharah contains the tomb of their progenitor Alako.

On the accession, or after the time of Meer Nasseer *Khán*, Mehrab Kalat-i-Nasseer. *Khán's* grandfather, the fort became known as Kalat-i-Nasseer, which appellation it at present retains.

The place of the greatest antiquity in Balochisthan is the island opposite port Pasanee, called erroneously Sungadeep, but correctly Ashtalla, and also correctly Carmine by Nearchus, if we regard the word as a corruption of Carline, or Kalyayan, (from Kalee, the goddess of fate, and Ayan, abode.)

It is at present known as Satadweep or the island of Sata, (Astula, or Kalee,) According to existing tradition it was once inhabited, but the inhabitants were expelled by the presiding goddess, in her wrath at an incest that was committed there. Pilgrims say, they are now only allowed to remain on the island one night.

Another place of Hindoo antiquity is Hingulaj, (from Hingula, a name for the goddess Kálee, and j, an affix importing position.) There are two places which pilgrims visit; one in a defile of the Hingulaj mountain, through which the river Agher runs, where there is a pool of water and a natural cave, containing a natural pillar, between which and the sides of the cave sinners find a difficulty to pass, while saints experience none; and outside this cave there is a natural platform in the rock, where goats are sacrificed to the presiding goddess Hingula.

Another is an ebullient (not hot) well, in which offerings are thrown, which, when emitted by a successive ebullition, form ingredients of thick cakes, baked on the spot by the pilgrims, who keep fragments as relics. The pilgrims wear as a distinguishing mark of

the order of Hingulaj, a large string of small clay beads, which are to be purchased at Thattah.

Besides these two shrines, the following verse serves as a guide to Other Pilgrimages. Hindoo pilgrims in Balochisthan:—

“ At Kalat you may see Kalee ;
And at Mustung, Mahadave ;
At Shal is the old Jogee ;
Panee-nath's grave.”

No tradition is preserved of the march of Alexander the Great through Balochisthan, with the exception perhaps of a mountain pass near Sarhad, called Lak-i-Lukman; Lukman being a fabulous philosopher whom Alexander released from a well in *Baghdád*, where he had been for forty years confined by enchantment.

At the same time, I believe that Alexander the Great is not connected in the minds of the inhabitants with the legend; but that regarding the work of cutting a pass through a mountain as one requiring great science, and knowing it to be a work of antiquity, they have given the credit of it to one of the only two scientific men of old known to them; viz. Lukman, the other being Plato.

The inhabitants of the coast of Mukran also know, by tradition, that an army was formerly reduced to great straits in taking the coast route from want of water and provisions.

Bampoor, (originally I have no doubt Bramhpoor,) must always have been, if not the capital of Western Balochisthan, at least one of the chief towns, from its fine natural supply of water.

In forming conjectures on the derivation of the word Mukran, it struck me as singular, that the word in Hindoo looked like the word Kirman; the letters changing places; as in the words chik-al and kick-al, mud.

I have heard of a rather ingenious derivation proposed in *Mahee Khoran* (fish eaters,) or michran. The Scindians are at the present day called in derision fish eaters. Nearchus says, that the Ichthyophagi believed themselves to be descended from a race who had been once transformed into fish or sea monsters. If this tradition was then in

existence, and the inhabitants believed it, their country might have been known as Mekrine (Maharayan, the abode of sea-monsters.) There is something of this tradition still preserved. The island of Sata-dweep is said to have been depopulated by the presiding goddess, on account of the commission of incest there.

Kech may have been the same with Bramhpoor, if we regard it
 Kech. as reducible from Kánj, a name of Bramhá. Or it may be drawn from Kesh, a name of Vishnoo, when no doubt the town was called Keshápoor.

Of great antiquity also are the caves near Belav, called after Saiful
 Saiful Malook. Malook, and more than one account has been given of them.

The whole country of Balochistan abounds with the remains of what
 Gabers. the natives at the present time believe to have been the works of the Gabers, or fire-worshippers; indeed the remains of any kind of solid masonry suggest to them the Gabers as the founders. The following are some of the sites of such remains; viz. in the defile of Jurgee; between Neechárah and Kapoto, at a place called Gat near Zahree; at Zeedee; at Dashtee Gorán near Kalát; at Keel in the Moora Pass; at Kuchakánee in the Tákáree Pass; near Bapow in the Moora Pass; at Mishk between Zahree and the Moora Pass.

The chief antiquity of Kalát itself is a Hindoo temple, dedicated to Kalat Antiquities. the Devee, or goddess Kálee or Durgá, the consort of Shiwa, which is believed to have been in existence even long before the time of Sewá. Again, some say, that the latter was ordered in a dream by Kálee to people the neighbourhood of the temple. Mehráb *Khán* had a respect for the fakeer of the temple, so much so, that when he died, the *Khán* gave him a piece of gold cloth for a shroud.

Another antiquity, but of more recent date, is the grave of a faqueer near the Kalát spring, who is said to have considerably enlarged it from what the original inhabitants or Dehwárs made use of. The faqueer is respected both by Mahommedans and Hindoos.

“ While living, Oorfee ! so behave thee,
 That when thy life time doth expire,
 Mahommadans with “ Zamzam ” lave thee,
 And Hindoos burn thee on a pyre.” *From the Persian.*

In Sewá's time, the summit of Kalát only was fortified, and that even very partially, which is now called the Meeree, (or citadel,) an expression peculiar to Balochistan, as in other parts of Khorasan it is called Arg, (Meeree meaning literally, "place of the Meer.")

There are no vestiges of Sewa, except in a part of the present building, between the rooms occupied by Mehrab *Khan's* mother and by his son; there is a small room known as "Khudee-i-Sewa," or Sewa's cabin; and whenever the slave girls get ill there, they attribute it to being possessed of one of Sewa's devils.

The term Brahoee I consider must have been given this people by the original inhabitants of the country, on their first entering it. I believe the word to be a corruption of Ibrahimee, Brahimee, or Brahiwee, as a race either invariably takes its name from its progenitor, or its original country. I have never heard it used in contradistinction to Naroee. Pottinger believes the word to have the same meaning as that of Rohilla.

The only antiquity of these people I ever heard of, is a boundary stone near Mashkai, called "Sang-i-Kumbar," where the Rambaranee patriarch no doubt fixed his boundary with the aborigines on his first settlement.

The latest reminiscence of the past is to be found in four grave yards under a hill to the east of Kalat. The western contains 15 or 16 graves of Ahmadzyes. The eastern, whose dome cannot they say be covered, is that of *Sakhee Meer Samandar*, (the Sambar of Pottinger?)

Between the two is a yard containing the tombs of Meer Nasseer and Meer Mahmood *Khan*, and between this yard and the dome of Meer Samandar, is the burial ground of Meer Shahnawaz *Khan's* family.

The oldest inhabitants of Kalat are said to be the Dehwars, or land proprietors. I do not look upon them as a distinct race, but as descendants of the different lords of Kalat, who have after being conquered, sunk down into tillers of land. The present race, like the other Tajuks of Khorassan, speak Persian, corrupted with the local neighbouring dialects. The Dehwars of Kalat corrupt their Persian with Hindustanee, Pushtoo, and Braho-iky. The following is a specimen:—

<p>Warnáreesá, hamáueemá raftam- Jargon. hamanjá yak kad e bood, aspia khuree kardam, azan- já puthareed, páash ba kad-i- moosh darámad, ragh ash taleed, mantharak zadam, sheoshudam, náf-i-man taleed wa dil-i-man budeed.</p>	<p>Old fellow, this moment I went over there, there was a hollow there. I spurred the horse, he jumped over it, his foot got into a mouse-hole, he sprained his nerve, I made a spring and came down. I sprained my navel, and my heart got sick.</p>
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These Dehwars are divided into five takars or clans.

I do not conceive that Sewa had any government; but rather that Kalat was first built by him, and considered his estate.

Tradition says, that Kalát passed into the hands of Persia from those of Sewá, and that the governor of the place was of Georgian extraction, who had a deputy at *Khuzdar*, and ruled over the clans, who were divided under separate Maliks and Arbabs.

This governor, after some time, losing controul over his passions, commenced a system of gross tyrannical debauchery, carrying off by force the daughters of the peasantry, and this was carried to such an extent, that the whole population was roused, and the heads of clans determined to administer the remedy with their own hands.

The deputy was much worse than his principal, as he not only required their daughters, but an entertainment of halwah, (a *blanc mange*,) which he had brought to him on a hill which is now called Koh-i-halwah, where the governors of *Khuzdar* now go to hunt.

The governor had for some time been in the habit of requiring *gratis*, and daily, the services of 25 Dehwars to build the defences of Kalat; such was his fear of their revenge, that before admitting them on the works, he had their persons searched to prevent their bringing in weapons concealed about them.

They were in the habit of baking bread of millet in large balls, with a heated stone in the centre, to provide for a thorough baking, called by the Affghans *kak*, and it occurred to them that this might be the means of their release, and the weapon of their vengeance.

Next day they passed the guards without any suspicion being attached to their bread, and finding the tyrant in a mid-day sleep, dispatched him; the town was

Revolution.

immediately surprised from without, and the Dehwars became masters of Kalat. On the news reaching Khuzdar, a similar rise took place there, which terminated as successfully.

The descendants of these patriots are now known among the Deh-Brahoee History. wars as "*dodee mast*," or "bread heroes."

Before entering on the history of the Brahoees, I must preface the subject by remarking, that the history of these people is in the hands of the Lohree minstrels, but that I heard from Mehrab Khan himself, that he could trace his descent for twenty-three generations, and that his progenitors emigrated from Halab, (Aleppo).

He also declared himself descended from Ameer Humza, uncle of the Arabian prophet, and a Hashamite Koreish.

Though not in possession of Merab Khan's pedigree, I procured in the early part of 1839, when in Cutchee, that of Baloch Khan Dombkee of Lahree, who traces it to the same source as the Khan of Kalat does. It is as follows: Baloch Khan, son of Mehrab Khan, son of Jalal Khan, son of Shahdad Khan, son of Jalal Khan, son of Meeroo Khan, son of Boot Khan, son of Baloch Khan, son of Meeroo Khan, son of Baloch Khan, son of Mahommed Khan, son of Meeroo Khan, son of Mahommed Khan, son of Husen Khan, son of Isak Khan, son of Ahmad Khan, son of Gulo Khan, son of Pervez Khan, son of Kahloo Khan, son of Madil Khan, son of Noot Khan, son of Bazan Khan, son of Ayalee Khan, son of Zan Khan, son of Matan Khan, son of Sairan Khan, son of Rind Khan, son of Jalal Khan, son of Hareen Khan, son of Gul Kharaj, son of Jarkh Taj, son of Baloch Khan, son of Satookee, son of Ilm-i-Mardame, son of Badee Uzzuman, son of Ameer Humzah, son of Abdu Mutalib, son of Abdu Manaf, son of Abdul Hasham.

Isak Khan had two sons, Saheek and Husen Khan. Chakar Khan is the son of Saheek, he is the progenitor of the Chakaranees of Hindusthan.

The former Jalal Khan, had five sons: Rind, Latree, Hot, Ruraiee and Jahtoee.

The Dehwars on taking possession of Kalat, held a council among themselves, and elected a representative, by name Rais Taj Mahommed, the eighth progenitor of the

Representative.

present Rais Khan Mahommed, and determined on putting him at the head of a deputation, to wait on the Rambaranee chiefs, who then resided at Mashkai, and invite one of them to rule over them at Kalat. The reason for making this choice was no doubt that they required a man of prowess; and where could they find one better to suit their purpose, than among the Brahoees, who had lately colonized, and who had gained every inch of the ground they possessed by the sword? and whose deeds under their chief Rambar, were probably then fresh in the minds of the Dehwars.

This Imaum Rambar it is said had eight sons: descended the Kambar. baranees. Kambar from whom

Ismail,	ditto	ditto	Ismailanees.
Gurgeen,	„	„	Gurginadees.
Meroo,	„	„	Meerwanees.
Roden,	„	„	Rodeenees.
Eltaz,	„	„	Eltazais.
Ahmad,	„	„	Ahmadzais.

The Dehwar deputation waited on these brothers at Mashkai, and a consultation was held on the subject of the proposition, when the elder brothers agreed that they would spare Ahmad the youngest, on account of his not having, like them, lands, flocks, and families to bind him to his paternal soil, and as being the most likely not to usurp undue authority.

Ahmad, with a few of his own Brahoee followers, proceeded with the Dehwars back to Kalat, and held his first court under a mulberry tree, outside the fort, to the East, which was situated on *matee* land, (*matee* meaning river deposit,) and under this tree for several subsequent generations, the Ahmadzais held their court, when they had to discuss matters of unusual weight, affecting the general welfare.

Before accepting however the Khanee of Kalat, Ahmad made the following stipulations with the Dehwars:—

1st. He required one of the six canals to be given to him for his support; this canal is called Joe-i-Toot, or Joe Ghulaman.

2d. He required grass, stalls and pegs for his horses; wood for his kitchen; chobdars or macebearers for his court; couriers and runners to procure intelligence; guards on the gates; camel-men for marching.

3d. He required the fort to be repaired when necessary, and the snow to be swept off the houses and works in the winter.

4th. He required to be relieved from entertaining public guests, such as envoys and couriers from Candahar and elsewhere.

Like the Israelites of old, when once determined to have a king, none of the disadvantages urged by the prophet Samuel could deter them—so it seemed with the Dehwars, for they agreed to all these conditions, and continued faithfully to perform these services, with now and then some mitigation; for instance, as Kalat became peopled with foreigners, they were made to repair part of the works, and during the time of Meer Nasseer Khan, in consideration of the great influx of guests, he allowed the Dehwars 2,000 Kareembanee rupees a-year; besides granting them some bunds or dams in Kuchee—these were however escheated by his successor Meer Mahmood Khan.

Ahmad also made his brothers agree to give him from every flock
 Tax. one sheep, one rope, and one felt rug. This their
 descendants continued to do until the time of Meer
 Nasseer Khan, who remitted the tax.

Meer Meerab Khan is, I believe, the seventh in descent from Meer
 Genealogy. Ahmed, the progenitor of the Ahmedzais, and among
 these seven, are Meer Mehrab Khan-i-Kalan, Meer
 Kale Khan and Meer Samander.

Among the eight brothers, the Ahmedzais, Eltazais, and Kamba-
 Intimacy. ranees amalgated together, and shared each other's
 joys and sorrows; that is, they intermarry and pay
 visits of condolence to each other on the death of a relation, and share
 in the payment of blood-money.

Of the intermediate Khans between Meer Ahmed and Meer Abdul-
 lah, Mehrab Khan's great-grandfather, I am in possession of little in-
 formation more than the following. Meer Sumandur obtained the sur-
 name *sakhee*, or the generous, from his great liberality and hospitality.

It was first under Meer Kale Khan, that the Brahooes rose into im-
 Meer Kale Khan. portance, and formed any thing deserving to be
 called a separate independent state. He expelled
 the tribe of Soomrees or Nomryas from Tuhrah, Baghlana and Khuz-
 dar, whence they took refuge in Lus, and gave the
 Nomryas. country to the Brahooes. He also made inroads to

the north and north-west, and took tracts of country from the former inhabitants, whom I believe to have been Huzarahs. This latter tribe

Huzarahs. it is true, is now only to be found far North of Balochistan. But there is evidence of their being once settled as far South as the district of Shawl, and this evidence is furnished by the Takatoo mountain, the word Takatoo being composed of *taka*, a wild goat, and *too*, answering in the Huzarah dialect to the Persian *dar*, and Hindu *wala*; and English *er*, as falcon, falconer; and *kutchlak*, caves.

I believe the Brahooes to have gained northern Balochistan from the Huzarahs, and the southern part from the Nomryas, Jokyas and Jaths. This latter tribe once held part of Mukran; and I have more than once been inclined to suppose, that the name had some connection with the country Gedrosia. There is besides a small stream near Cutchee, known by the name of Jathro at the present day, and a tribe called Jattakees, from their inhabiting the Jattak hills in the Brahooick range.

It was under Meer Kale Khan, I should think, and not under Meer Ahmed, that the Brahooes were spread over the conquered country in the following order: the Eltazais were given Baghbana; the Meerwanees retained Mashkai and Kolwah; the Rodeenees and Gurgina-
Colonies. dees were settled in the south, and the Ismailanees in the north; while the Kumbaranees were spread over the country from Kech to Mustang, as their great numbers created apprehensions of a revolution.

As the power of Kale Khan increased, the Bادهchees of Shorowak and the Panees of Siwee courted his alliance, and it was during this ruler's government that Akhund Mullah Mahommed arrived at Kalat, having fled from She-
Alliances. raz. He was a man of great talent, and his prepossessing manners and his foreign extraction, which rendered him free from localities and interests, induced the Brahooes and their Khan to offer him the office of wuzeer with the title of wakeel, as wuzeer was only applicable to the prime minister of a king. The
Wakeel. descendants of this Mullah Mahomed say, that he was by descent a Sayad, but dropt the title on gaining temporary power.

It was this man that first divided the Brahoees and their country into the two divisions of Sarawan and Jhalawan.

Divisions.

Sarawan means "upper country," and is derived from the words *sar* and *abadnee*; thus Sarabadanee, Sarabanee, Saraban (as Beaban,) Sarawan and Jhalawan signifies "low country," from the words *jhala* and *abadanee*.

Sarawan is applied to the country north of Kalat, and Jhalawan to that to the south, while Lus means, the "flat country."

At present, in time of war, the Brahoees assemble under three standards; viz. under the first, the Khan of Kalat and his own retainers; under the second, the troops of Sarawan under their immediate leaders; and under the third, the troops of Jhalawan.

Nothing of importance is really preserved as having taken place between the time of Meer Kale Khan, and Meer Abdulla Khan, who was a bold, proud and enterprising man, and was constantly employed making forays; sometimes in the territories of Shah Mahmood Ghiljee of Candahar, as is shewn by the tomb of Sardar Khan's father being at Lylee Majnoon; sometimes in Sindh; and sometimes towards Derajat. The reason of his invading the latter country arose from the following accident. A Brahoee shepherd, grazing his flocks in the country dependent on Dera, one day

Meer Abdulla.

Dera.

allowed his sheep to stray into some cultivation, for which tresspass the former killed one of the sheep, and severely beat the shepherd. He came to Kalat to complain to Meer Abdulla, who sometime afterwards expressed to his nobles his determination of invading Dera. In vain did they try to dissuade him, urging the insignificance of the cause of the quarrel, and the expense of the trip; nothing could dissuade him, and he declared thus in reply: "That one Brahoee sheep nightly leaps in the bowels of Abdulla Khan and allows him no rest."

The foray was made and proved successful, several of the Dera villages were burnt to ashes, and Abdulla Khan's troops returned to Kalat, laden with plunder, and encumbered with captives.

Some time after this, a quarrel broke out between Abdulla Khan and the Kalora chiefs of Scinde, on the subject of the district of Cutchee, to which the Brahoee herdsmen yearly emigrated with their flocks for the winter. During

Kaloras.

the quarrel, Abdulla Khan made several successful forays in the territory of the Kaloras; to resent one of which, Meer Johrab collected a force, and moved out against the Brahoee chief. The parties met and had a severe engagement, in which the Brahoees were defeated, Abdulla Khan was killed, and his corpse was never discovered. With him, fell on the Brahoee side, besides three hundred men of no note, Meer Zirk Zahree, the chief of Jhalawan, and the father of Mulla Mahommed Raisanee. Abdulla Khan, before his death, inflicted a severe wound on the forehead of Meer Johrab; and ever after, when the subject of a quarrel with the Bhahoees was started in durbar, Meer Johrab would exclaim, "Ah! Baloches, the blood from the wound Abdulla Khan inflicted, still trickles down the forehead of Johrab."

Death.

Johrab.

Kech.

Sons.

It is also said, that Meer Abdulla Khan made several forays in the district of Kech; but failed to take the fort of that name.

Meer Abdulla Khan left three sons: Meer Muhabbut Khan, Meer Mahommed Nasseer Khan, and Meer Eltaz Khan. The elder of these succeeded his father.

Meer Muhabbut Khan's first thought was to revenge the death of his father on the Scindians, and this thirst would never perhaps have been allayed, had not fortune, about this time, brought the Persian conqueror, Nadir Shah, to Candahar.

Nadir Shah.

Meer Muhabbut Khan, after a consultation with his nobles, determined to repair to the royal camp, which he joined at Lahore, in its progress to Hindusthan, and stated that the object of his ambition and visit, was to get revenge for the death of his father. Nadir Shah's answer was, "The blood of Abdulla Khan stains the forehead of Nadir, and please God I will seek it at the hands of those fish-eating Scindians."

Meer Muhabbat Khan accompanied the conqueror on his invasion of Hindusthan. When Nadir, on his return, arrived at the Indus, the Khan reminded him of his promise; Nadir immediately ordered the route to be changed in the direction of Scinde, on his arrival on the boundary of which, Mijan Noor Mahommed, the chief, fled to Umarkote, and the inhabitants in dread left their villages and fled to the hill. On Nadir's arrival

Mijan Noor Mahommed.

at Hyderabad, he lost no time, but by making several forced marches, (fable says one,) succeeded in surprising the Scindian chief in Umarkote,

Umalkote. who immediately surrendered, and on being asked by Nadir Shah whether it was true he had a well

full of gold; replied, "Please your Majesty, I have seven; and have brought the keys of the whole." This answer pleased Nadir, who did not fine him, but brought him with the royal camp back to Cutchee; when he ordered him to be taken to the tents of Meer Muhabbat Khan, to be treated as the latter willed. The Brahoees, after some consultation, decided that Nadir Shah would be offended if the Scindian should be put to death; they therefore contented themselves with requiring, as the price of blood, the countries of Cutchee, Curachee and the Roors, and a lakh of rupees in ready money.

Cutchee. An agreement to this effect having been concluded in the presence of Nadir Shah, Noor Mahommed was allowed to return to his capital. On Nadir Shah's arrival at Ganjabha, the Scindian governor, Murad Ganjab, entertained him for a week, and then

Murad-i-Ganjab. was killed by his orders, at the secret request of the Sindh chief, who distrusted him. Nadir then set out for Candahar, via Sannee and Sohian, and the Bolan pass. Meer Muhabbat distributed some of the lands thus acquired to the families of those chiefs who had fallen with his father. For instance, he gave Gajan to the son of Meer Zirk, and Meer Rasheed Khan enjoys it at the present day, and Rahnakha to the Raisanees.

Meer Muhabbat Khan's younger brother, Meer Mahommed Nasseer Khan, was, with *Agha* Aly Badazy, and a few slaves, in constant attendance on Nadir Shah: and afterwards, on his successor Ahmed Shah. He was looked upon as a hostage; and it is said, that during one of the campaigns, he and his followers were at one time so destitute, that they extracted the half digested grains out of horse's litter to make bread of. Meer Muhabbat, jealous of his younger brother, did not furnish him with funds adequate to his support during the time of Meer Muhabbat Khan. Akhund Mulla Shahdad was wakeel, and his son Akhund Mulla

Mulla Shahdad. Mahommed Haryat was appointed to reside at the court of Ahmed Shah.

One sultry day, when Meer Muhabbat Khan and Akhund Mulla

Shadad were out hunting together, the former asked the latter to give him a drink of water. Mulla Shahdad complied, but with a bad grace, as he regarded the request derogatory to him, and fearing lest the Khan, if not remonstrated with, would demand other menial services from him, wrote a letter to his son at Candahar, saying, I always thought you were *haizat* (alive,) but unless you can get Muhabbut Khan's affairs disarranged for me, I shall think you dead. Akhund Mulla Mahommed Haizat, on receiving this letter from his father, made use of the influence his patron the wuzeer Shah Wulee Khan had over Ahmed Shah, in getting Meer Muhabbut Khan summoned to court. His coming to court, however, is accounted for in the history of Ahmed Shah as follows: When that monarch was on his return from Amanabad in Guzerat, to Candahar, in the third year of his reign A. H. 1162, Muhabbut Khan Baloch came in and paid his respects, and was made chief of the whole of Balochistan; soon after he began to commit acts of cruelty and tyranny; among which, the murder of Gilan-i-Kasee in Shawl, was the most glaring. This determined the king to fit out an expedition against him. The royal force was opposed at Mustung by a Baloch force under Raim Khan Shaheranee and Mulla Haizat, and gained a victory, making both the above prisoners. On this news reaching Muhabbut Khan at Kalat, he repaired to the royal camp, surrendered himself, and then, with the whole of his family, accompanied the king back to Candahar.

When he, Mulla Haizat, had effected this, he still openly paid most abject court to Muhabbut Khan, as his lawful chief; but secretly intrigued with the Beahnee chiefs in the Khan's train, and by the aid of presents put at his disposal by his patron the wuzeer, succeeded in estranging the Brahooes from Muhabbut, and transferring their allegiance to Nasseer Khan. For some time these intrigues were carried on secretly; at last the wukeel, throwing off the mask, got the younger brother declared Khan of Kalat and himself wukeel; and had Muhabbut Khan and a few of his confidential attendants put under surveillance, in which he died.

Meer Eltaz Khan went mad; and his frantic tricks often justly caused alarm. One day at Ganjabah, Meer Eltaz appeared before Nasser Khan, when alone, with a

Insult out Hunting.

Mulla Haizat.

Supercession.

Meer Eltaz.

drawn sword. The latter was a little lame, from the effects of a wound received in Persia, and generally had a long straight sword with him, on which he leant. In trying to ward off his brother's attack, he accidentally gave him a thrust, which proved his death-wound. Meer Nasseer Khan was greatly shocked at this calamity, and afterwards his mind took a serious turn, and he fitted out an expedition to Mecca to make atonement for his crime.

When Meer Mahommed Nasseer Khan obtained the Khanship of Kalat, he was twenty-four years of age: and he ruled it is said fifty years. Mulla Mahommed Haizat, as may be supposed, became all-powerful; so much so, that Bibee Miriam, the Khan's mother, is said to have taken her son to him; and solemnly to have confided the lad to his care, saying, he was the controller of her own and her son's fate, as the latter owed his advancement entirely to him.

Meer Nasseer Khan's first care on gaining power, was to reward the companions of his confinement. He conferred the government of Bhag on Agha Aly Badozye. The office of darogah of Kalat, he gave to Mullah Fazul Mahommad Khanahzad. The sundookdaree, to Mulla Peer Mahommad. To Mulla Yaya, he gave the office of phabgasee, and made Mulla Peer Mahommad Kalaghzye, duzbegeer and darogah of Mustong, and Mulla Gudud, his nazir.

Mulla Haizat fixed upon the chiefs to be employed, and took care that they were of sober and modest habit, not likely to mislead the young Khan.

The first time that Nasser Khan is mentioned in the history of Ahmed Shah, is in the following passage:—

In A. H. 1171, being the 12th year of his reign, on the 11th Rujab, the king having received intelligence of Ghazee-uddeen Khan of Alumgeer, and of Shahzada Timoor, Ahmed Shah. ordered an army to assemble under Meer Nasseer Khan, the Baloch chief, and to march on Cabool. On the 12th Shaban, the king started, and after being detained fifteen days on the road from sickness, arrived at Cabool on the 7th Ramzan.

Nasseer Khan after assembling his troops, looking on the hurry of the king, as arguing his fear of some powerful demonstration on the part of the Marathas, threw off
Rebellion.

his allegiance, and fortified himself in Shawl, and commenced foraying the neighbouring Badeechees, Tareens, and other Afghans. Sometime after in a skirmish with the Kakurs, Rustom Khan Baloch with several followers were killed. On this account, the whole of Balochistan joined Meer Nasseer Khan; except Meer Jahanee and Jangal Khan; who were in consequence obliged to make good their retreat to Iskalkot, a place distant one fursakh from Kalat. Nasser Khan's force gradually increasing, reached at last the alarming amount of one lac.

On hearing this, the king determined on proceeding to Balochistan in person. After seeing Shahzada Timoor, he left Cabool on the 23rd Zilkad, and passing Candahar, encamped on Thursday, 9th Mohurram, on a rising ground, half a fursakh to the north of Kalat, and com-

menced the investment: next day, Shah Wullee
 Siege of Kalat.

Khan was appointed to take up the investment on the west side; Barkhurdar Khan on the north; Shah Pasand Khan on the south; and Khan-i-Khanan on the east. Batteries were erected, and hostilities commenced. Many men were daily killed and wounded on either side, and Barkhurdar Khan was wounded by a matchlock bullet. At last, on Tuesday the 4th of Mohurram, at noon, after a desperate and well sustained engagement, the Baloches gave in, and Nasseer Khan sent his mother and Mulla Haizat to sue for pardon, and soon after followed them himself. The king conferred on him a dress of honor, (at that time coarse satin, called *mushroo*,) and the chiefship of the whole of Balochistan.

The cause, course, and issue of this campaign is however differently

told by the Brahoees, in the following manner:
 Other Version.

Shah Wullee Khan, the all-powerful wuzeer of Ahmed Shah, either finding his influence declining, or taking offence at some act of the king's, instigated his partizan Nasseer Khan to rebel: and then persuaded the king to advance in person on Kalat;

which place was unsuccessfully besieged for some time.
 Siege.

At last the king authorized the wuzeer to enter into terms. The latter of course had no difficulty in inducing Nasseer

Khan to come out, and surrender: which, it is said, he
 Surrender.

did, accompanied by a few followers, dressed in the rude manner of his country, with raw hide shoes, camel hair coats, and leathern bags on their backs, containing a few handfulls of parched wheat,

and pointing them out to the king, asked, "What can your Majesty want of men whose clothing and food are such as you see?"

Ahmed Shah took Bibee Jan, the sister of Bahram Khan, for a wife
Bibee Jan. for his son Timoor Shah, and her brother accompanied her, with the king, back to Cabool.

A treaty was concluded between Ahmed Shah and Meer Nasseer
Treaty. Khan, on the part of themselves and successors, to the following effect. :—

1st. The Brahoee chiefs are not to interfere in the internal feud of the Sadozyes, and are to be subservient to the reigning king.

2nd. Should an Ahmedzye Brahoee take refuge in the Dooranee country, the Sadozyes are not to support him against the Ahmedzye chief of Kalat; they are either to give him up to the latter, or employ him about their persons.

3rd. The Sadozyes are not to pursue any of their tribe who take refuge in the Brahoee territory.

The chiefs of the Dooranees and Brahoees exchanged a similar agreement; with the exception of Barkhurdar Khan, Achakzye, who bore the Brahoees an ill feeling, having, in the Persian campaign, been accidentally wounded by one of them.

This 3rd article was insisted on being rigidly observed, as in the
Observance. case of Shahzadah Humayoon who took refuge from Shah Zaman in 1793; and in the case of Shah Shuja, who fled before the Sirdars after his last attempt to regain his throne, and took refuge with Mehrab Khan in 1834.

Nasseer Khan continued to furnish his quota of troops in the Sadozye campaigns; and it was latterly employed in garrisoning
Service. Cashmere. There are at the present day Baloch works in Cashmere, Peshawar, and Cabool. He received 500 dresses of honor from the royal *toshakhana*, headed the van of
Distinction the army; and was entitled to beat drums three times a day, and wear two *jigahs*, or jewelled plumes, a privilege never granted to the Sindhians.

Meer Nasseer Khan distinguished himself in one of the king's Persian campaigns. The chief opposed to the Dooranees had a private understanding with the wuzeer Shah Wulee Khan, and the latter, on

Nasseer Khan joining the royal camp, warned him not to volunteer for any attack on the enemy. Ahmed Shah, in public exploit. durbar, on several occasions, called for volunteers: no one came forward; at last Nasseer Khan, unable longer to counterfeited the craven, volunteered with 1000 Jhalawan foot, and 1000 Sarawan horse for the attack; during the time it lasted, a false report was brought to Ahmed Shah, of the Khan's defeat! The former sent the news to his mother, Bibee Miriam, who was in the royal camp. This heroic woman made the following reply: "If you say he is dead, I will believe it. Meer Abdulla never approached me without ablution; and I have never given suck to Nasseer Khan without the same; and have never slept with my back to him, how then can he be defeated and alive." A second courier soon arrived, and contradicted the false report; the attack had been successful. Ahmed Shah pleased with the high feeling displayed by Bibee Miriam, conferred on her and her son, Shawl. the district of Shawl; making a pun on the word. Nasseer Khan out of this district gave the water of Hanna to his patron Shah Walee Khan Bamezye, and it is held to the present day by his descendants.

Nasseer Khan again distinguished himself in Hindusthan, at Muttra, where he was wounded. On his return, Ahmed Shah conferred on Harrand, Dajal. him the districts of Harrand and Dajal, (properly Daoojal.) After this, Nasseer Khan did not campaign in person; he never paid his respects at the court of Timoor Shah: but sent Sultan Mahommed Murad, the hereditary Sultan, to represent him there.

Nasseer Khan made several fruitless attempts to take Kech. He at length made a grand effort, and ordered the whole of his force to assemble in the spring at Khozdar.

When assembled, it is said by Meerza Deen Mahommed to have Expedition to Kech. amounted to thirty thousand horse and foot. The siege of Kech was commenced on its arrival there, but it was beginning to be rather a prolonged one, when Nasseer Khan annoyed at the delay, ordered ladders to be prepared, and the place to be assaulted by escalade at all risks. The attack proved successful. The Zikarees, who defended the place, were either killed or taken prisoners, and the grave of their patron saints defiled. The bones having

been extracted, were burnt with horse litter. The Brahoee loss amounted to seven hundred. Nasseer Khan held the Meeree by means of his own dependants, but gave the town and district to the Lichkees.

During the time of Nasseer Khan, the Immam of Maskat took refuge at Kalat, on account of some convulsion in his own state; and received in grant for his support, half the revenue of the ports of Gwadar and Chobar.

So strict in his allegiance to Ahmed Shah was Nasseer Khan, that he never failed in sending the usual yearly presents, consisting of horses, camels and slaves, not only to the king, but to his courtiers. He has moreover been heard to say, that should none be left of the Sadozye dynasty but a girl, and that girl a blind one, the Ahmedzyes ought to acknowledge her.

Nasseer Khan had a great taste for learning, and invited learned men from all parts to his court. He conferred on them salaries and grants of land, and distributed them throughout his dominions to instruct his ignorant subjects; and never were subjects more in need of religious instruction: it may fairly be said, that they were only made thorough Musulmans of, in Nasseer Khan's time.

An anecdote is related of a Brahoee, who when asked of what persuasion he was, replied, "The persuasion of the Great Khan." On the Khan's return from his Hindusthan campaigns, he made up his mind to introduce shaving of the head among his countrymen, that they might in no way resemble the Sikhs. It was with the greatest difficulty that he got even the people immediately about his court to allow of the innovation, although he set the example by shaving the heads of his own sons. The Brahoees, however, of the present day shew they have in some way profited by their Khan's admonitions, seeing they differ from the Baloches, and never indulge in intoxicating drugs.

Meer Nasseer Khan distributed large sums in charity, besides 2,000 or 3,000 Rupees every Friday in alms. He yearly sent to Mecca, presents to the amount of 30,000 Rupees; and fed pilgrims *gratis*, from one end of his dominions to the other.

In such veneration was Nasseer Khan held, and so proud was the Brahoee nation of him, that an anecdote is told; and the truth of it credited universally. That a Brahoee, on his return

home from an interview with Nasseer Khan, would not for several days after open his lips to a soul, not even to the members of his own family. On his being pressed by his half-frightened friends to disclose the reason of his extraordinary silence, he sharply observed, "How can I speak to such dirt as you, with the same mouth that has been opened to address the Great Khan."

The Brahoees looked upon the descendants of Nasseer Khan as their spiritual as well as temporal chief, until the charm was partly broken by Mehrab Khan, by the number of cruel executions ordered by him: but even in his time, the wild Brahoees from the hills, were in the habit of kissing the threshold of the citadel gate.

An anecdote is also told, that Nasseer Khan, during the early part of his government kept a tame tiger, which he used constantly to visit for the following reason, which he assigned in reply to a questioner: "Whenever I feel rebellious, I look at its eyes, and they remind me of Nadir Shah's, and I am immediately quieted and made loyal again." He also never lost his boyish dread of Mulla Haizat's admonitions. The son of the latter, Mulla Futteh Mahommed, after his father's death, was wukeel during twenty-four years of Nasseer Khan's reign.

When Nasseer Khan was getting old, fancying his end approaching, he reflected that his sons were mere children, and foresaw that the Sindians, on his death, would wrench from them the port of Karachee and the Koorg; he therefore determined, contrary to the advice of many of his self-sufficient courtiers, voluntarily to cede the above places, in favour of their former owners, which he accordingly did by treaty, after several missions and deputations, had been interchanged.

Pottinger mentions, that Bahram Khan made his appearance in Balochistan during the reign of Nasseer Khan, and created some disturbances: but being defeated at Koohak by the latter in an engagement, again retired to Cabool, to which place he had originally accompanied his sister Bibee Jan.

Nasseer Khan had nine wives and concubines; for many years none of his sons by them grew up, but all died at an early age. He had nine daughters; four of which he gave in marriage

to the four sons of Meer Kamal Khan Eltazye; the eldest, by name Maeë Zainab, commonly known as Maeë Sahib, married Meer Sayad Khan. He gave his other daughters in marriage to the Gichkees and Meerwanees.

When Meer Nasseer Khan was almost beginning to despair of male issue, Bibee Khudejah presented him with two sons: Sons. Mahmood Khan and Meer Mustafa Khan; and by another wife, Bibee Jattee, daughter of Kamal Khan, he had a third son, Mahommad Raheem Khan.

Meer Nasseer Khan's death took place at Ganjabah, about six months Death. after Timoor Shah's, which happened on the 20th May 1793, and his young, but eldest son Mahmood, succeeded him at the early age of eight years.

Mahmood Khan is twice mentioned in the Duranee history; once together with his brother Mustafa Khan as having in Duranee History. 1804 paid his respects to Shah Shuja at Bagh, when that monarch was on his way from Candahar to Sindh, and a second time as having in 1814, paid his respects to Shah Mahmood at the same place.

Pottinger says, that in the early part of Mahmood's reign, Bahram Khan again made his appearance in Balochistan, Bahram Khan. and the ministers of Mahmood Khan were obliged to cede to him the district of Cutchee, on condition of his not molesting the remaining territory; with this condition Bahram did not comply, but raised a large force and assumed a threatening attitude: the ministers of Mahmood in alarm, applied to Shah Zaman, who sent a chief to arrange matters, which becoming impossible, war was declared. After several minor engagements, the rivals had a general one, in which Bahram Khan was defeated, owing to the defection, during the engagement, of several chiefs and their contingents. He fled to Hyderabad, where the Ameers refused him refuge, for fear of the displeasure of Shah Zaman. He then set out for Bhawalpore, and died of fatigue on the road, at Tanda-i-Kalandar Shah.

Mahmood's nurse, Daeë Beebo, became a person of great note from her method of bringing up the young Khan. When Daeë Beebo. Mahmood and Mustafa grew up, dissensions were sown between them. Maeë Sahab, Ahmed Yar Khan, and the Elta-

zyes supported Mustafa Khan in Cutchee ; while on Meer Mahmood's side, were Mulla Futteh Mahommad wukeel, naib Abdu Rahman Badozye, and Meyan Ruhulla Babee. Such was the
 Dissensions. dissension, that it spread to families ; fathers and uncles would be on one side, and sons and nephews on the other. However, when Meer Mahmood, according to custom went to Cutchee for the winter, Meer Mustafa would pay him the compliment of coming to Peer Chatta to meet him.

Meer Mahommad Raheem Khan had fifty horse, and was in the pay of his elder brother. He was a great drunkard, but
 Mahommad Raheem. a generous man and a bold soldier : and he nearly succeeded in putting an entire stop to highway robbery in Cutchee.

Mustafa was a great tyrant, and his punishments were most cruel.

Mahmood, although addicted to gambling, drinking and more degrading vices ; was both humane and indolent to a fault. It is reported of him, that after ordering a culprit to be placed in confinement, he would go in person at night, and release him. He was a man of great strength, and it is said could straighten a horse-shoe.

Mahmood, it is said, accompanied Shah Mahmood twice towards Campaigns. Herat ; and that monarch and Shah Shuja to the Derajahs and Sinde.

Myan Ruhulla being a man of great talent and influence among the Myan Ruhulla. Brahoees, was looked upon by Mae Sahab with great suspicion, and as a dangerous rival.

She persuaded her colleague, Mustafa, to attempt the Myan's murder. They could not for several years however find an opportunity. At last one winter, when Meer Mahmood was on his way to Cutchee, on arriving at Nad, he heard that Mustafa had assembled a force to oppose his further advance. He immediately despatched a confidential slave, by name Hajee Barat to Mustafa, who succeeded in appeasing the latter, and Meer Mahmood advanced into Cutchee, and made Gundava (properly Gunjaba) his head quarters. It was at this place, on the eve of the Eed Kurban, when Mahmood was sleeping outside the town, that Hajee Ubdu Rahman Kamangar, muazin of the mosque of Nasseer Khan, and an accomplice of Mustafa's, came and informed his master, that Myan Ruhulla was asleep and alone. The Khan, thinking it a

favourable opportunity, and attended by Shahghasee Deen Mahommed, repaired unobserved to the Myan quarters, and finding him asleep,

Murder.

murdered him. They afterwards made an attempt to murder Mulla Futteh Mahammed wukeel, and

naib Abder Rahman in their quarters, but failed. Mustafa Khan, when the unusual consternation produced by this event was still at its height, despatched, by the Nagour road to Kalat, Sultan Mahommed, Murad Mullazye, and Meer Allee, the nephews of darogah Gul Mahommed, with orders to confiscate the Myan's property, as well as that

Confiscation. of the following Babee merchants, who were all imprisoned, viz. Khaleefa Abdul Kareem; father of the present Faiz

Imprisonment. Ahm,d, Mulla Alif, Bostan, and Myan Moorulla, brother of the deceased.

Meer Mustafa sometime after came to Kalat himself, and released the Babee merchants, having realized, it is said, nearly four lakhs of Rupees, from the confiscated property.

Noor Mahommed Khan Moosanee, father of the present Meer Boohir, had, on hearing of the death of Myan Ruhulla, taken his family to a place of safety, at Noghiana, for the sake of the relationship that existed between them. Myan Sibaghatulla, the son of Myan Ruhulla, having married a daughter of Noor Mahommed Khan's.

Another of the events that marked the reign of Mahmood Khan happened as follows: Meer Fakeer, father of Reia Bezanjo rebelled. Meer Mahommed reported the subject to Shah Shuja, and as he, as an Amadzye, could not inflict the punishment of death, requested the king to depute one of his own nobles to sanction the adoption of extreme measures towards the rebel. Naib Gul Mahommed Populzye was accordingly despatched, and arrived at Kalat, and from that place accompanied Mahmood Khan to Khoz-

dar, where Fakeer and forty of his followers were captured and slain. Meer Mehrab Khan, during the Barikzye usurpation, did not hesitate to put Brahoes to death, without any sanction but his own.

During Mahmood's time, Quettah was twice sacked by the Kakars. An embassy from the Immam of Muskat came to Kalat during Mahmood's time, and never after.

Muskat.

The two brothers Mustafa and Mahmood were continually quarrel-
 ing ; but always made it up after a short time, until
 Quarrels. the following occurrence took place :—

Mae Sahab, Ahmed Yar Khan, Meer Eltaz and their party, deter-
 mining to have a struggle for sole power, proposed to connect themselves
 by marriage with the Talpoor family of Sindh, at the head of which
 there were the four brothers, Ghulam Alee, Karam Alee, Murad Alee
 and Futteh Alee.

Mae Sahab and Meer Ahmed Yar Khan set out for Sindh, and
 Intrigue. gave to Meer Karam Alee in marriage Bibee Fatimah,
 the sister of Ahmed Yar Khan. The Meer in return,
 gave as a settlement the district of Shahdadpoor and two thousand
 Marriage. rupees, and gave Mae Sahab great hopes of sup-
 port to her cause.

This ill-judged match disgusted Meer Mahmood, Mustafa Khan, and
 Disgust. the whole of the Brahoes, and even the friends of
 Mae Sahab equally ; the Talpoors being considered
 a very low tribe, as the following Baloch verse will shew :—

<i>Verse.</i>	<i>Translation.</i>
Kedds, Gabal Godhai Pachalo, Talpoor Bewakai Maree. Durust Ghulam-i-Chakare. Banadi Bashkathaga. Datk-Nazurth Hadaiya.	Kedds, Gabols, Gadhais, Pacha- los, Talpoors and lawless Murees. All were slaves of Chakar, (Rind,) with Banadi (his daughter) as a dowry he gave, Hadaiya (his son- in-law) would not have them.

Mustafa Khan, Akhund Tutteh Mahommed, and naib Abdu Rahman,
 Deputation. were deputed to Candahar to interest the king in
 revenging this insult. They had already a friend at
 court in the wuzeer, Sher Mahommed Khan. They offered to con-
 duct the king through the Bolan Pass, (an offer never before made)
 and to assist him in collecting the arrears of tribute. 'They also
 Betrothal. gave Meer Mahmood's daughter, Bibee Emuah, to
 the king's eldest son, the present prince, Timoor.

On Shah Shuja's arrival at Shikarpore, he devastated the country

on this side the Indus, and compelled the Ameers, after a great deal of hesitation and evasion, to pay the sum of twenty-four lakhs of rupees,

Tribute. as arrears of tribute: three more lakhs being spent in fees and presents to the courtiers. The Talpoors

grateful for no heavier penalty, vowed twelve thousand rupees worth of silver to adorn the doors of the shrine of Sal Shahbaz at Dehwar.

The Talpoors then entered into a treaty with Mahmood Khan, and expelled Mae Sahab from their territory. The Khan

Treaty. then accompanied the king on his way to Dera and

Peshawur as far as Dagal, and thence returned to Kalat.

Meer Mustafa Khan and Mahommed Raheem Khan were deadly enemies. Mustafa Khan resided at Bagh, and Mae Sahab at Kotdo, and the former was in the habit of going on weekly visits to the latter, with a few horse, for the purpose of hunting in the neighbourhood, at Futtehpoor. During one of these hunting excursions, Mahommed

Hunting. Raheem Khan happened to be hunting in the same neighbourhood, at Panjak. On hearing of the proximity of his brother and enemy, he abandoned the hunt, and proceeded

with his few followers to attack his brother: an engagement took

Death of Mustafa. place. Mustafa Khan was killed, and Mahommed

ing for Mustafa Khan; and after sacking this place he retired to

Relict. Janpoor near Dera. Mae Sahab took the corpse of Meer

Mustafa to Bagh, and built a splendid mausoleum over it.

Mustafa Khan left one son, Sarfraz Khan, a daughter Bibee Ganjan,

and two widows, Bibee Ganj-Khatoo, sister of Meerulla Khan; Raisanee, and Bibee Hazaree, daughter of Meer Hasal Khan Shahwanee.

During these transactions, Meer Mahmood was at Kalat.

Mahommed Raheem, not being able to rest at one place, was brought by his evil genius again to Panjak, and to the neighbourhood of Mae Sahab, who burned to revenge the death, not only of a brother,

Death of Mahommed Raheem. but it is whispered, of a lover. She stole upon him one day while asleep, attended only by a slave,

Baloch, who was shampooing him, and her attendants immediately despatched him, after a short resistance. The corpse was brought

to Gundava, and afterwards sent to Baghbana. He left no family.

Meer Mahmood had now nothing to fear: but this independence came too late, for disease was making great inroads on his constitution. He at last fell a victim to zabitus, a disease brought on by venereal excesses, while yet a young man, having reigned 24 years. He left three wives, one concubine, three sons, and one daughter. Meer Mahommed Mehrab Khan, Meer Mahommed Azam Khan and Bibee Emnah of one mother; Bibee Sakhee, a Shaezye Mogul. The third son, Maddat Khan, of the concubine, died at an early age.

Mae Sahab died in the reign of Mehrab Khan, of a stroke of a hot wind, in the Moola Pass.

When Meer Mahommed Mehrab Khan succeeded his father, he had arrived at years of discretion.

At the time of Mahmood's death, Shahzadah Kamran was at Candahar, and Munsoor Khan was governor of Shikarpoor. Akhund Futteh Mahommed lost no time in repairing to the latter place, and in persuading the Khan to accompany him back to Kalat, where assisted by the Brahoee chiefs, he installed Mehrab Khan on the part of the king, chief of Kalat; notwithstanding the opposition of Mae Sahab, the Eltazyes, and Meer Ahmed Yar Khan, who wished to declare the latter.

When Mehrab Khan, after his installation left Cutchee, and was returning to Kalat, Mae Sahab took Ahmed Yar Khan, and retired with him to Shawl, the place of Ahmed Khan Magasee, and collected a force of Chandyas and other Brahoees. Mehrab Khan on the other hand, collected a force at Gunjaba, and encamped at Panjak. No engagement however took place, and matters were peaceably arranged by Akhund Futteh Mahommed and naib Abder Rehman. Mae Sahab and Ahmed Yar Khan accompanying the new Khan to Kalat, Abder Rahman was left behind as governor of Cutchee; and wukeel Futteh Mahammed had otherwise the sole direction and management of affairs. After some time, however, Mehrab Khan entrusted the management of affairs to his mother, Bibee Sahtee, and her manager again was Meer Abdul Kadir, son of naib Abder Rahman, who soon supplanted his father, and led Mehrab Khan into every kind of debauchery. Some of the Khan's slaves, such as Meero and Mubarak, made a point of praising

Abdul Kadir.

their patron to Mehrab Khan in private. About this time Dad Mahommed Umarzye Ghilzye came into notice, he was one of the *peskhidmats* of Mehrab Khan, and kept the seal with which the daily order for rations was sealed. This man, in the time of Mahmood, was dog-keeper to the young Mehrab, but getting into a scrape about an intrigue with one of nurse Beebo's slave girls, fled, and took service with Hajee Barat. He was once employed in collecting the revenue of Dajal. Mulla Fakeer Mahommed, a *khanahzad*, was the manager of Kalat, and kept the dafturs; Darogah Gul Mahommed and Shahghassee were of no note.

Akhund Futteh Mahommed still continued to serve faithfully; although superceded and surrounded by enemies, the foremost of which was the Khan's mother. For fear of her, it is said, the wukeel was often afraid to go to his house at night, and slept by the Khan.

Although Mulla Abdul Kadir used to interfere in the wukeel's province, he always desisted when complaints were made to the Khan. At last the following enemies of the wukeel conspired together and determined to attempt his ruin: they were Mullah Abdul Kadir, Meer Eltaz, Meerulla Khan Raisanee, and some Ghulams.

Meer Mubarick, the son of Mullah Futteh Mahommed, and Meer Kadir Bakhsh Zahree, chief of Jhalawan, his son-in-law, were both (unknown to each other) enamoured of one of Mullah Futteh Mahommed's slave girls.

The conclave therefore first made a disclosure to each party of the other's successful amour, and thus succeeded in making them deadly enemies. At last in the month of Ramzan, when Meer Mubarick was

performing ablution in his own room, Kadir Bukhsh stole upon him, and killed him: and then fled to Bibee Lal Baiee Eltazy, widow of Meer Mahmood Khan, (his own mother being an Eltazy,) where he remained in concealment three days. These same chiefs, after Meer Mubarick's death, importuned the Khan to kill Kadir Bukhsh, to avenge the blood of Meer Mubarick. Their object was to involve Meer Futteh Mahommed, in a bloody feud with the Zahrees, and to deprive the Akhund of the powerful influence of such a son-in-law. Meer Kadir Bukhsh was accordingly killed, in the Meeree of Gundava, while

Death of Meer Mubarick.

Death of Kadir Bukhsh.

bathing, and his corpse was taken to Zahree, by Taj Mahommed Zahree, his cousin.

Akhund Futteh Mahommed, by the counsel of the Zahrees, and consent of the Khan, then set out for Candahar, to sue for revenge: Shazada Kamran appointed Sirdar Poordil Khan Barukzye to accompany the wukeel, and to carry out his views in respect to Abdul Kadir and Meer Eltaz. Wuzeer Poordil Khan. Futteh Khan was a friend of the Akhund's.

On Kamran starting for Herat, Poordil Khan set out for Dadar; on arriving there, he suggested to the wukeel that they should commence destroying naib Abdu Rehman's property, but the former would not consent. They then proceeded to Gandava, and Poordil Khan proposed the seizure of Abdu Rahman: but the Akhund again refused his consent.

This wavering and repenting annoyed Poordil Khan, and caused him to accept the overture made to him at this time by naib Abdar Rahman, accompanied by a bribe of thirty thousand rupees, and no doubt the Akhund would soon have had cause to repent his lenience, had not, at this time the news arrived of wuzeer Futteh Khan being blinded. On receiving the intelligence, Poordil Wuzeer Futteh Khan. Khan immediately set out for Candahar, and the deaths of Mulla Futteh Mahommed's son and son-in-law remained both unavenged.

Mae Sahab, Ahmed Yar Khan and Sirdar Khan Rind, again rebelled, and took up their quarters in Sawee; having gained over the Khajaks. Mehrab Khan collected a force, and marched against them. Mae Sahab stood a twenty day's siege, and then made a conditional surrender, and with Ahmed Yar Khan, and Sarfraz Khan, the son of Meer Mustafa, accompanied Mehrab Khan to Gundava. Meer Ahmed Yar Khan having first sent his wife and two sons to Sagan. Rebellion. Surrender.

Merab Khan tried for a long time to get Admed Yar Khan to send for his two sons; but his friends persuaded him not to trust Mehrab Khan. At last, unable longer to resist the latter's importunities, the sons were sent for, and the whole party left Cutchee for Kalat.

Mulla Abdul Kadir despatched one Dadulla Khan to Candahar, to Poordil Khan, whom naib Abdar Rahman had secured in his interest,

by the thirty thousand rupees' bribe, and got him to address letters to Mae Sahab and Ahmed Yar Khan, in answer to supposed proposals made by them, to the effect, that " their letters had been received by

Plot. Poordil Khan, who recommended them to pursue the course they had adopted, and promised that he would start with a force as soon as their plans were matured."

These letters were shewn to Mehrab Khan as intercepted ones ; and in proof of the treachery of Ahmed Yar Khan. Merhab being loathe to believe it ; other letters were procured and shewn, the Khan believed them to be genuine, and Kulla Abdul Kadir, Meer Eesa Khan Mongul, Dad Mahommed Gilzye, and Meero Ghulam, did not hesitate to advise the Khan to do away with both Ahmed Yar Khan and Sarfraz Khan, who at last agreed to it. Accordingly in the month of Rujab, one day early in the morning, Meer Ahmed Yar Khan was summoned before Mehrab Khan, being at the time an invalid, and cut down in the

Deaths of Ahmed Yar Khan and Sarfraz Khan. presence. Meer Surfraz was then sent for, they found him reading the *koran*, which book he brought to the presence with him, and by it intreated Mehrab to spare his life. His intreaties were of no avail, he was slaughtered on the spot, Meer Eesa Khan striking the first blow. Mulla Raiee, Shahghasee Barfee, and fifteen others of the deceased's attendants were killed at the same time. Ahmed Yar's sons, Meer Shahnawaz and Meer Futteh Khan, with their mother were confined ; and they remained under strict surveillance for near twenty years. These murders were committed at Gundaba : and Mehrab Khan returned to Kalat, leaving Mulla Abdul Kadir governor of Bagh.

On the march, and in the absence of the above, Dad Mahommed and Meer Eltaz. Meer Eltaz completely gained the confidence and trust of the Khan, who soon after married Bibee Magany, the daughter of Meer Eltaz ; and made the father his manager, Dad Mahommed having in reality all the power.

Mulla Abdul Kadir, thus finding himself supplanted, appropriated to himself about a lakh of rupees of the Cutchee collections ; and proceeded to Kahnak and joined Meerulla Kaisanee. Mehrab tried to coax him to Kalat, but Poordil Khan and the Kakers some time dissuaded him. At last his father, Abdu Rahman, wrote him a letter ; and among other affecting appeals, begged him not to prove false to

the shade of Nasseer Khan; unable to withstand these intreaties, he set out, and having reached Manyochar, sent and requested that a respectable man might be sent from Kalat to meet and reassure him. Kueen Khan Zahree and Mulla Futteh Mahommed Khanazad were deputed with secret instructions to murder him, which they did; the

Murder of Abdul father, Abdu Rahman, being murdered at the same Kadir and Abdu Rah- time at Kalat. The family property was confiscated, and some time afterwards, Meer Yar Mahommed Shaezye Mongal removed the family to a place of safety at Wad.

During this time, the Baloches of Cutchee were committing great de- Death of Meer Eltaz. predations; and when Mehrab Khan was on his way to that district, Meer Eltaz died, having been sahabkar, or manager, only one year.

In the Duranee history, Mehrab Khan is only mentioned once as having paid his respects to Mahommed Azeem Khan Duranee History. Barukzye and Ayoob Shah in 1820, when on their way from Candahar to Shikarpore; at which latter place Shah Shuja was.

On the death of Meer Eltaz, Dad Mahommed became all-powerful, but he did not make a discreet use of his power; Dad Mahommed. for he was in the habit of treating the Brahoee Sirdars with disrespect, deriding their appearance and peculiarities of manner in public durbar.

His assumption so disgusted the Sirdars, especially those of Sarawan, that they deputed Sayad Mahommed Shareef to Candahar, offering all to pay their respects to the chiefs of that province, if they would promise them their assistance.

Sirdar Sher Dil Khan wanted to get Shikarpore from the Scindians: Defection. he therefore treated the Sayad with great distinction, and he was despatched with an agreement and a dress of honor. The whole of the Sarawan chiefs then repaired to Candahar, and received dresses of honor.

Mehrab Khan, in great alarm, despatched Myan Sibaghatulla to Candahar, to make a treaty with the chief Poordil Deputation. Khan, and to persuade the Sarawan chiefs to return to their allegiance. At the time of his arrival, Sher Dil Khan had advanced two stages, as far as Dae, but was obliged to return, from sickness.

A sham treaty was concluded, which provided for the removal of Dad Mahommed, and the appointment of Futteh Mahommed to be wukeel; Sayad Mahommed Shareef, to be naib of Dajal; Mahommed Khan Shahwane, to be naib of Dadar; Misree Shaezye Mongul to be naib of Shawl; Arif Khan Mambaranee to be naib of Mustung, and 60,000 rupees of the year A. H. 1234 to be paid, (nominally to defray the expences of dresses and entertainment to the Brahoes.) The Sarawan Brahoes required the Khan's brother Mahommed Azam, wukeel Mahommed Sideek, Meer Rasheed Zahree, and Meer Eesa Khan Shaezye Mongul, to come to Candahar to coax them back to their allegiance. The Sirdars despatched Mulla Abdul Ghyas in company with the Sahabzadah back to Kalat. The latter commenced intriguing with Mahommed Sideek Khan, and the other enemies of the Khan. These comprised the whole of the Brahoee chiefs, with the exception of Wulee Mahommed Mongul and Ahmed Khan Magasee, who with one consent determined on killing Dad Mahommed, even should no other opportunity be afforded them than in the presence of the Khan.

A few nights after the return of Sibaghatulla to Kalat, Mehrab Khan sent for wukeel Futteh Mahommed, and requested him to proceed to Candahar instead of Mahommed Sideek, who was an enemy of his; to this proposal the Akhund did not agree, and Mehrab Khan slightly annoyed, said, "Then you had better put your hands and feet in henna, and I will go myself." The Akhund was either playing a double part, or was led away by the Eltazyes, Eesa Khan, Meer Booheer, Rusheed Khan. Mahommed Khan Rind to regard the Khan's allusion to the red dye, as a threat to kill him be—either the true reason, he certainly immediately joined and headed the malcontents.

Towards the evening of the next day, the whole of the Brahoes openly rebelled, and drew up on the road to Iskalko the Shahwanees. Mehrab Khan moved out, and encamped in front of them, with the Ghulams, or slaves, the Babees, and the town and suburb people, attended by Wulee Mahommed Mongul and Ahmed Khan Magasee. Myan Sibaghatulla with the Khan's consent

brought his mother, and put her down between the confronting forces. This of course was a signal for a truce. Until midnight, the Sahabzada Sibaghatulla vainly endeavoured to reconcile the parties, and Mehrab Khan retired into the citadel: and the Sahabzada succeeded in getting his friend, the wukeel's family, out of the town.

Next day, the Sahabzadee Sayad Jamal Shah, Nazar Juma, Meer Jam Alee, and Meer Yakoob Khan Eltazy, were sent on a deputation to the rebels, with the following proposals; viz. that Dad Mahommed should be deposed and made over to them for execution, banishment, or pardon; that the Akhund should occupy his place; and that they should all receive their former jaghirs. To these terms the rebels would not agree, saying, they had no faith in the Khan's promises or oaths regarding Dad Mahommed. On the

Khan's deputation returning, Meer Kamal Khan, Meer Rusheed Khan, and Meer Yakoob Khan remained behind, the former was the last; on nearing the walls of Kalat a chance shot was fired by one of Ahmed Khan Magasee's men, and Meer Rusheed Khan returned to the rebels on the pretence that the shot was fired at him.

The rebels moved off for Soherab, and Mehrab Khan sent Jam Alee to try and make terms. He also remained in the rebel camp.

The Khan at last in despair, despatched Hajee Barat, Meer Gul Mahommed Ghilzye, Deewan Khemchund, and Sibaghatulla to Candahar, with Mullah Ghyas, the Khan's mother, and the stipulated 60,000 rupees.

On the night of the rebellion of the wukeel and the Jhalawan chiefs, Mulla Ghyas received intelligence of the death of Sirdar Sher Dil Khan at Candahar.

On the embassy arriving at Kahnak, the tribes of Sarawan assembled, and tried to prevent the Mae proceeding to Candahar. Mae Naz Khattoo, niece of the Khan's mother, and wife of Mahommed Khan Shahwanee interceded, and prevented the detention of the embassy.

Poordil Khan, on hearing of the approach of the embassy, left Candahar and encamped at Dae, that it might be thought he was prepared to take severe notice of the delay made by Mehrab Khan, in sending the deputation according to treaty; at the first interview therefore, although Poor Dil Khan receiv-

ed Maeë Sahab with great courtesy, the delay was severely censured ;
 Increase of Tribute. and the Khan insisted on the payment of three lakhs
 instead of 60,000 rupees. This being agreed to,
 Poordil Khan offered, before the payment of the money, to put a
 force at the disposal of Maeë Sahab, to punish the refractory wukeel
 and rebels of Jhalawan. She however proposed returning to Candahar
 with the Khan, from which place, dresses of honour were immediately
 despatched for Mehrab Khan and Dad Mahommed.

On terms being made with Poordil Khan, Mehrab Khan again sent
 proposals to the rebels in Cutchee ; and Mahommed Sidick
 Terms. Khan, Meer Rusheed Khan, and Meer Kamal Khan proceed-
 ed to Kalat, on it being promised that Dad Mahommed should be
 given up to them, and that their jaghirs should be restored ; however,
 on their approaching Kalat, Mehrab Khan furnished Dad Mahommed
 with 1,000 ducats and sixty horses, and told him to take refuge in
 Noshky. From this place Dad Mahommed despatched his father, Sher

Reception. Mahommed to Candahar, with an offer to come and pay
 his respects to the Sirdar, and he in person, immediately
 followed, and was received with great distinction.

The deputation remained five months in Candahar, and started on
 its return in the winter, accompanied as far as
 Return of Embassy. Shorawak by the Sirdar's son, Meer Afzal Khan, and
 the whole way by Juma Khan Burikzye. The Sarawan chiefs also
 returned to their country, and Sibaghatulla and Khemchund were
 detained as security for the payment of what remained of the three
 lakhs. Mehrab Khan would not see his mother for a month after her
 arrival at Kalat, pretending to be offended at her having agreed to the
 payment of the three lakhs, and Dad Mahommed remained at Giránee
 at the Khan's request.

The Khan then sent his mother to Cutchee, to reconcile the rebels.
 Failure to Nego- They would not listen to terms, and Mahommed
 tiation. Sidick and Meer Rusheed Khan also left Kalat, and
 proceeded to Cutchee in disgust.

After the winter was over, and the spring harvest reaped in
 Cutchee, the rebels proceeded to Khozdar, and threatened to continue
 their contributions in the direction of Mech. Kehrab
 Surrender of Mehrab. Khan seeing his overthrow approaching, proceeded

with a few attendants to Khozdar, and threw himself on the mercy of his wukeel.

After reconciling the rebels by such degrading proceeding, Mehrab Khan sent for Dad Mahommed, reinstalled him, after giving him a dress of honor, and going through the mockery of sending him to the Akhund.

Mehrab Khan according to the treaty with Poordil Khan, appointed the naibs of the latter's nomination; but soon after Treaty annulled. deposed them. This and the reinstallation of Dad Mahommed rendered the treaty with Candahar null and void. Sayad Dajal sold. Mahommed Shareef, naib of Dajal, had already sold the district to nawab Bahawal Khan.

The death of Meerulla Khan is one of the events that mark the reign of Mehrab Khan. It occurred in the following manner: He was a Raisanee by tribe, and son of Mulla Meerulla Khan. Mahommed, the mother of Sarfraz Khan; Bibee Ganj Khattoo was his half sister, and the mother of Abdul Kadir, Bibee Sahto, was his niece. On this account he was an enemy of Dad Mahommed, who caused their deaths; and Dad Mahommed aware of this, continued to pre-justice the Khan, who had now become completely his dupe, against him. At last Meerulla Khan was sent for to the Meeree, under pretence of his counsel being required, and there, in the presence of the Khan, Murder of Meerulla. was murdered. Yoosuf Khan and Meer Zungee Raisanees were killed near the mosque outside of the citadel, and Sakeer Mahommed was killed in his own house in the town. Mehrab Khan that night pitched his camp towards Mhozdar, preparatory to proceeding to Cutchee.

These murders spread the greatest consternation through the country, and in the spring, the whole of the Sarawan Defection of Sarawan. chiefs again sought refuge and redress in Candahar. Mohundil Khan collected a force and marched for Balochistan. He arrived at and ravaged Shawl, Seeree, Invasion. and Pilingabad. Mehrab Khan, after great delay, collected an ill-organized force, and marched for Kustung. At Shiree-Engagement. nab, the two advanced guards met, and an engagement ensued, in which the Brahoee troops suffered themselves to be defeated.

Mehrab Khan, discovering an extensive and dangerous defection among his troops, was forced to buy off the Candahar force for forty, thousand rupees in A. H. 1234, and to give Meerza Gul Mahommed, as security for the payment of the money in Candahar. Rohundil Khan having procured satisfaction for himself, returned to Candahar, leaving the Sarawan chiefs at the mercy of Mehrab Khan.

Dad Mahommed seeing his influence declining, and becoming daily more unpopular, determined to connect himself by marriage with the Brahoees. He first took the daughter of Rais Khan Mahommed Dehwar. He next proposed for the daughter of Meer Misree Shaezye Mongul, but was refused. He then took the daughter of Essa Khan Shaezye Mongul, and the daughter of Wadera Jan Mahommed Bangulzye for his brother Khan Mahommed. He also made overtures to get up a party of the following; viz. Meer Wallee, Mahommed Khan, Ghulamzye Mongul, Meer Fazal Khan Zagar Mongul, Ahmed Khan Magasee, and Meer Bijad Keerwanee of Kech, and at Candahar with Mama (Khuda Nazar Khan Ghilzye,) and through him with Sirdar Rahamdil Khan.

The reason for his conciliating Meer Bijad, was to secure Kech as a place of refuge, in case of his being disgraced at court.

Day by day Dad Mahommed became more powerful, till at last the Khan himself was not looked up to, and the former collected the revenue, and disbursed it as his own caprice dictated; he even proceeded so far, as to give the Khan insulting answers, and to mimic

him, and to boast to his face that he had the power of deposing him. He was in the habit of withholding the household expences for months together, and the Khan dared not remonstrate; he sometimes would not rise, when Mehrab entered the durbar.

The Khan's eyes were at last opened, and he determined on ridding himself of Dad Mahommed, and broached the subject to naib Mahom-

med Hasan, Shahghasee Noor Mahommed, Mahommed Sideek wukeel, Abdul Kareem Khan Raisanee, and several others. The firmly rooted infatuation of the Khan was, however, so well known to them, that they would not believe him, when he told them he wished Dad Mahommed's death.

For a whole year he failed to convince them, till at last when the winter approached, and the time for the court moving to Cutchee arrived, the Khan as usual, requested Dad Mahommed that the funds necessary for the preparations should be produced. Dad Mahommed put the Khan off from day to day, (and it is said, that the tents remained pitched for two months,) and at last flatly refused the funds. Mehrab Khan no longer able to bear with this assumption, sent for Dad Mahommed to the Meeree, and high words were exchanged. Mehrab Khan rising and retiring, and Dad Mahommed doing the same, to the suite of rooms occupied by the Khan's mother, for the purpose of performing ablution before saying prayers.

Naib Mahommed Hassan and wukeel Mahommed Sideek, with others of their party, had some time before consented to attempt the life of Dad Mahommed, who was aware of their intentions, but doubted their daring.

As the latter was performing his ablutions as above mentioned, naib Mahommed Hassan stole stealthily behind him, with a drawn sword, and cut him down. Shahghassee Noor Mahommed following the example.

When I first met naib Mahommed Hassan at Hustung, in June 1838, with Sayad Mahommed Shareef, the latter praised the bravery of the former, as displayed on the above occasion; and pointed to the identical sword with which the deed was done, and which hung by the naib's side, with great pride.

Dad Mahommed's property, to the amount of from four to five lakhs, was confiscated; but it was thought that a great quantity had been concealed, and Mahommed Hassan was appointed naib, and Mahommed Sideek wukeel, with all the honors. The Khan however thought and acted for himself, kept his own seals, and had his accounts kept by a Hindoo, by name Deewan Bachamal.

When Shah Shuja was besieging Candahar in 1834, Meer Shah-nawaz Khan, and Futteh Khan, made their escape from the Meeree of Kalat, and their flight was not known till next day at noon. On their arrival at Pishing, they met Sirdar Samandar Khan on his retreat from Candahar, where Shah

Shuja had been defeated, and returned with him to his estate of Hanna in the district of Shawl. They then took refuge for a short time in the Kakar country, and then separated; Shahnawaz proceeding to Candahar, where Sirdar Kohun Dil Khan, at the recommendation of Mulla Nassoo Lodeen, for some time afforded him support; and Meer Futteh Khan taking refuge with Meer Rusheed Khan Zahreehere, after some time, having assembled a force, he moved down on Cutchee, and was there joined by his brother Shahnawaz from Candahar. Several

Opposition. engagements took place between them and the Khan's brother, Mahommed Azam Khan, with varying success, until they were completely defeated by the latter at Dadar, and obliged to proceed to their former retreats.

Mehrab then moved a force against Rasheed Khan, and demanded Meer Futteh Khan. that his protegé, Futteh Khan, should be given up. This Rasheed Khan refused. At last, at the mediation of the Brahoees, Futteh Khan was given up to Meer Walee Mahommed and Raheem Khan, to keep. Mehrab Khan then tried to bribe them, to deliver up their charge to him; but found they had too much honor for him. For they not only refused thus to dishonor themselves, but assisted Futteh Khan in making his escape to the Sasolees, from which tribe he retreated to Sinde, and took protection with his aunt Bibee Fatimah at Hyderabad, where he got addicted

Pursuits of the Brothers. to low pursuits and debauched habits, as did his brother Shanawoz, at Candahar, who on that account, was neglected by Kohundil Khan, and reduced to great distress.

Shah Shuja on his defeat, retreated via Lash, Seistan and Shorawak.

Shah Shuja. On his arrival at the latter place, the Sirdars became aware of his proximity, and fitted out a "chapao," under Raham Dil Khan, for his pursuit and capture; which latter was so nearly being effected, that before the rear of the king's baggage had left the ground at Mungochar, the advance of the pursuing party

Pursuit. reached it, and succeeded in capturing some baggage ponies. The Shah, on his arrival at Kalat, sought the tent of Mehrab Khan, and threw himself on his protection. The Khan re-

Escape. ceived him with great honor, and all the deference due from a vassal to his sovereign.

On leaving Mehrab Khan, scarcely had his majesty reached his own suite of tents, when Jan Mahommed Khan Kuzzalbash arrived on the part of Sirdar Raham Dil Khan, to demand the person of the king.

His Majesty, in the greatest alarm, sent Mehrab Khan a golden hookah, and five hundred gold mohurs, by Kazeer Mulla Hassan Peshawuree; but the Khan, contrary to the advice of menials, returned them; and then, contrary to the advice of his courtiers, told Jan Mahommed to tell Raham Dil Khan, "If he wanted his friendship, to refrain from his demand; as he was prepared to sacrifice his life, property, country, and tribe, in the service, or at the feet of his lawful king." On Jan Mahommed taking his leave, and after the king had halted for some time at Kalat, the Khan furnished him with respectable men to accompany him to Bagh. On his arrival at the latter place, he heard of the death of Samundar Khan at Siwee, and therefore proceeded without delay to Shikarpore.

But to proceed from these events to those of the year 1838. On the 15th January of that year, I arrived at Candahar on a mission to the Sirdars, the object of which was to detach them from an alliance they were on the point of entering into with Persia; and in which I found Mehrab Khan was prepared to join them, notwithstanding he had sent an embassy avowedly to consult with them on the method of relieving Herat.

In order to make known the Governor General's declaration, that the British Government acknowledged and respected all the different holders of power in Afghanistan, I addressed a letter direct to Mehrab Khan with the consent of Raham Dil Khan. Sometime elapsed before I received an answer, and I only heard, that Mehrab Khan was piqued at Raham Dil Khan being made privy to our correspondence. Notwithstanding this, I afterwards discovered, that the delay in receiving an answer to my letter was occasioned by the Khan writing from Kalat to Candahar, to consult the Sirdar, regarding the style of answer he ought to return. This shews, that the supremacy of Candahar was acknowledged by the Khan.

On it becoming necessary for Sir Alexander Burnes, in April 1838, to break off all intercourse with Ameer Dost Mahommed, and to proceed direct to Peshawur, I was ordered direct to Shikarpore by the Bolan route.

On my arrival at Shawl in June, the Bolan route being reported impassable by the Governor of Shawl, on account of the hot winds, and knowing that the Governor General when he originally organized our mission, intended it should visit Mehrab Khan on its return to Hindosthan, I determined on getting invited to Kalat, to wait till the end of the hot weather. Having procured the necessary invitation, I proceeded to Kalat, where I held constant intercourse with the Khan for three months.

Before I became aware of the intention of Government to restore Shah Shuja, he foresaw that it would take place, and became very anxious to conclude a treaty with the British Government, saying, he was favorable to the Shah's cause, not from choice, for the king had never since he left Kalat expressed his gratitude for his safety, which he owed, after Providence, to him, but from necessity; for the protection he had afforded to the fugitive Sadozye monarch had made Events of 1838. deadly enemies to him, of the Burikzye faction, which now ruled Afghanistan.

Whilst at Kalat, I constantly wrote to Government, pointing out the value of the Khan's friendship, in case an army advanced by the Bolan route; but although while at Kalat, I received intelligence of the intention of Government to restore Shah Shuja, yet, I was ordered to keep it a profound secret.

The hot weather having past, and having yet received no authority to remain at Kalat, I started for Shikarpore; on my arrival at Soherab, I received a letter authorizing me to make the Shah's restoration public, but containing no instructions to remain at Kalat. These however at last reached me some days after my arrival at Shikarpore; and I had scarcely completed my preparations to return to Kalat, when I received a letter from Sir Alexander Burnes, saying, he had been appointed envoy to Kalat, and requesting I would delay my departure. I joined Sir A. Burnes at Roree, and he became so taken up with commissariat arrangements, in which he required my assistance, that he delayed either proceeding himself, or deputing me until it was too late.

Treaties had been concluded with the Ameers of Sind, and the Nawab of Bhawalpore, and Mehrab Khan was called upon to allow Events of 1839. supplies to be laid in Cutchee, and to procure camels. He laid obstacles in the way of the former

being done, and made excuses for not doing the latter; saying, a treaty should be made with him, as had been made with the Ameers of Sinde and the Nawab of Bhawalpoor, to both of whom he considered himself superior, as he had never been tributary, as they had, to the Sodozye kings. A treaty was refused, and after the march from Shikarpore of the army of the Indus, Sir A. Burnes proceeded to Kalat, to purchase supplies and bring Mehrab Khan to pay his respects to Shah Shuja at Shawl; both of which objects he failed to accomplish, and the districts of Shawl and Cutchee were declared forfeited by the Khan accordingly.

The army advanced on Candahar and Cabool, and Mehrab Khan having been convicted of annoying detachments frequenting the Bolan Pass, by means of the Brahoee and other tribes inhabiting the neighbourhood, his deposition was determined on; and the Bombay column,

Deposition. under General Wiltshire, on their return, took the fortress of Kalat by storm on the 13th November, 1839.

Just before the citadel was stormed, and he was killed, Mehrab Khan sent the following message, with a matchlock, to his son by darogah Moosa: "Tell my son that both myself and my wealth have past away and become sin-offerings for him; give him this matchlock, that has descended as an heir-loom from his forefathers. Tell him to keep it, and bear it on his shoulders; and he will one day be Khan of Kalat. Tell him not to be guided by the counsel of the Brahoees, and not prematurely to oppose Shahnawaz Khan."

Mehrab Khan, in his lifetime, gave two of his daughters in marriage to two sons of Meer Karam Khan Eltazye; and for his son, the young Nusseer Khan, he engaged the daughter of Meer Rusheed Khan Zahree.

The following will shew that Mehrab Khan repented of the murderous policy he had pursued.

In durbar one day in August 1838, wishing to prove, if what I had heard of his cruel disposition was true, I remarked, that the Afghans and Baloches could only be ruled with a rod of iron. "I thought so too," replied he with a sigh, "and many a chief have I had butchered beneath this very window at which we are sitting; but I was wrong, and I have lived to know it."

*Proceedings of the Asiatic Society.**Meeting of Wednesday Evening, 7th June, 1843.*

The usual monthly Meeting was held at the Society's Rooms at half past 8 P. M., the Rt. Rev. the Lord Bishop in the chair.

The following gentlemen proposed at the former Meeting, were balloted for and declared duly elected :—

R. CURT, Esq. C. S. and J. E. L. BRANDRETH, Esq. C. S.

The usual communication was ordered to be made to them.

One new Member was also proposed; viz.

J. W. FULTON, Esq. Barrister at Law. Proposed by Major E. POTTINGER, seconded by Captain BROOME.

The following Books were presented, and purchased :—

Books received for the Meeting of the Asiatic Society, on the 7th June, 1843.

The Calcutta Literary Gleaner, May and June, 1843. Vol. ii, Nos. 3 and 4.

Presented by the Editor.

The Calcutta Christian Observer, June, 1843, Vol. iv, No. 42. Presented by the Editor.

The Oriental Christian Spectator, second series, May 1843. Vol. iv, No. 5. Presented by the Editor.

Edinburgh New Philosophical Journal, by Professor Jameson. Edinburgh, 1842, Vol. xxxiii, No. 66. Presented by the Editor.

Journal of the Royal Geographical Society of London, 1842, Vol. xii, pt. i.

Proceedings of the Geological Society of London, 1842. Vol. iii, pt. ii, No. 87. Presented by the Society

Journal des Savants, September, 1842. Paris. Purchased.

The Chemical Gazette, or Journal of Practical Chemistry. London, Nov. 1842. No. 1. From the Editor

London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. 3rd series. Vol. xxi, No. 138 and 139. From the Editor.

Observations sur la Peste du Levant, et sur la vertu spécifique de l'Huile d'Olive, par J. G. de Hemso. Florence, 1841. Presented by the Author.

Hemso, Degli ultimi Progressi della Geografia. Milano, 1841 and 1842. Presented by the Author.

Pratt's Mechanical Philosophy, 2d edition. Cambridge, 1842. Presented by the Author.

Goodwyn's Memoir on the application of Asphaltic Mastic to Flooring, Roofing, and Hydraulic Works in India. Calcutta 1843. Presented by the Author.

Goodwyn's Memoir of an improved System of Suspension Bridges, on the principle adopted by Mr. Dredge. Calcutta, 1843. Presented by the Author.

Newbold's British Settlements in the Straits of Malacca. London, 1839. 8vo, 2 vols. Purchased.

Drawings of the Gates of Somnath and of the Tomb of Mahommed of Ghuzni were exhibited to the Society, before being sent for publication in the Journal.

Read the following letter from Dr. HÆBERLIN:—

H. PIDDINGTON, ESQ.

Sub-Secretary of the Asiatic Society.

MY DEAR SIR,—I have the pleasure to acknowledge the receipt of your favor of the 2nd instant, along with a letter of Mr. Koenig of Bonn, and one of Dr. Roer, the Librarian, respecting a selection of Books to be sent to Bonn, and to be received from thence.

I recollect having made a memorandum of the Sanscrit works proposed to be sent to Bonn for sale, as likewise what works published there should be requested. The lists were approved of, and I believe it was arranged between Mr. Torrens and myself, that I should communicate this to Mr. Koenig; unfortunately I had not kept a copy of the Memorandum, and after once or twice asking for it, it then appeared to have been mislaid by Mr. Torrens. My weak state of health prevented a more active share in this, as in every other measure of the Society at the time; and not being in possession of the lists as approved of, I put it aside, and as it often happens, forgot the business altogether.

This is the only apology I can offer for the omission on my part. Mr. Torrens must take some share of the blame, for having mislaid or lost the Memo.

I have often felt the want of a more ready communication between Germany and India, and have some months ago, (in the hope of establishing a regular channel of communication and exchange in Oriental publications,) made proposals to the principal publishers there on the very subject; and moreover, personal intercourse between an individual on the point of coming to Calcutta and the Booksellers of Leipsig, Berlin and Bonn, being now lost, as an individual member of the Society, I could wish that the subject should be allowed to remain, as it is at present.

The Society cannot conveniently undertake the duty of selling books for Booksellers; and the works printed in Calcutta could be despatched with greater regularity, and with more chance of meeting with a ready sale, if arranged by those who make it their particular business. This much, as to the proposal to interchange publications with Mr. Koenig.

But the subject, now to my best recollection first revived by Dr. Roer, and likewise mentioned by Mr. Koenig, demands a few words more.

1. It appears from Dr. Roer's letter, that the works sent by Mr. Koenig have been received, but never distributed. (By the bye, I venture to put in a claim for a copy of each.)

2. That no returns have been made. If the value of the Books presented by Mr. Koenig he at all considered (about Rs. 500,) he would be entitled to several copies of all our Sanscrit publications now on sale, and this is an additional reason, why for the present it might be better not to dispatch any Books to him for sale.

I think Mr. Koenig is entitled to, and I beg to propose accordingly:—

6. Copies of the Mahabharata, complete,

12. „ „ Harriwanso,

12. „ „ Raja Tarangini,

12. „ „ Naishada,

I thank you for the kind enquiries after my health. I am happy to say, that there is hope of its being restored on these hills, although at present I am still an invalid. If all be well, it is my intention during the approaching rainy season to leave Simla, and endeavor to cross the Himalaya, when I would have an opportunity of visiting the various places in which our late lamented Librarian, Mr. Csoma, lived in true Tibetan fashion. For myself, I do not mean to imitate him in that respect.

Should any thing occur of interest to the Society, it will afford me great pleasure to put you in possession of it.

J. HEBERLIN.

Simla, 15th May, 1843.

A descriptive list of the coins, lately received from the University of Christiana, with remarks, was presented by Dr. ROER, the Society's Librarian. The list is as follows:—

Descriptive list of the Coins, presented by the University of Christiana, by

DR. ROER.

I. COINS OF THE 12TH CENTURY, ESPECIALLY NORWEGIAN.

A. Coins, bearing the inscription of a single letter.

1. The letter A, inscribed in two concentric circles. R.
2. The same, smaller. R. R.
3. The same with a point on both sides of the letter, and another below. R.
4. A similar one of smaller size. C.
5. The letter B, inscribed in two circles. C.
6. The same with a point to the right. R.
7. The same with a point on either side. R².
8. A similar one, smaller.
9. B. with four points. C.
10. The letter G. R².
- 11-12. Two similar ones.
13. The letter H, surrounded by four points, and the outer circle formed by globules. R⁴.
14. — with a point below.
15. Similar.
16. The same letter with three points. C.
17. M, with a point above. R⁴.
18. N, with a stroke, crossing the middle line. R.
19. R, with a point to the right.
20. The same, with a point on either side. R².
21. S, with a point on either side. C.
22. A similar one.
23. Similar, but the S reversed, and the outer circle consisting of globules.
24. The letter T in its antient shape, with a point behind. C.
25. X with globules in its extremes, and the outer circle also consisting of globules. C.
26. A similar one, with a small line affixed to its upper portion. R.

B. Coins, representing simple Crosses.

27. A Coin, bearing a simple cross, inscribed in two circles.
28. A similar one.
29. A small Cross, the arms terminating in globules. R4.
30. A Cross, with two points. C.
31. A similar one.
32. Another of larger size.
33. A Cross, a point in every angle.
34. A Cross, the foot of which is supported by two oblique lines. R2.
35. A similar one, arms terminating in globules.
36. Another.

C. Coins, representing Patriarchal Crosses.

37. A Patriarchal Cross, arms terminating in globules. R2.
38. A similar one, the foot supported by two oblique lines. C.
- 39-40. Two similar ones.

D. Coins of various types.

41. A Coin, having a spiral line inscribed in it. R3.
- 42-43. Two plain Circles, being concentric to an outer one, which consists of globules, the centre marked by a point. C.
44. A Star, composed of eight 2-horned rays.
45. Obv. A bearded Head.
- 46-51. Six Coins, not distinguishable.
52. Obv. A Building. R. Runic characters.

Frederick I. Emperor of the Germanic Empire. 1152-1190.

53. O. FRÆDRÆIMPR. The Emperor with a crown, seated; in the left holding out the globe of the empire, in the right a sword; on the left a star.
R. Roma caput mundi. A castle with gate and tower.

Hitolph, Archbishop of Cologne, 1076-79.

54. O. HIT ARTT PISCOP. The Archbishop seated, with two infula in his right.
R. Colonia. Pais mai. A Castle, with three towers and a gate.

Philip, Archbishop of Cologne.

55. The Archbishop seated, in the right the infula, and in the left a book.
R. Sancta Colonia.

II. Norwegian Coins, previous to the accession of the Oldenburg dynasty.

1. Ob. Olaw D. Gra. Archep. Nid. En.
R. Sanctus Olaw. This is a coin of Olai Lunge, late Archbishop of Norway.
2. A Coin of the Interregnum in Denmark of 1448.

*III. Coins of Danish Kings of the Oldenburg dynasty.**CHRISTIAN I. 1448-81.*

3. Christi. . . D. G. An. R. surmounted by a crown.

JOHN. 1481-1513.

4. Jas. D. G. R. Dani. In the centre of two circles the letter R. surmounted by a crown.
5. The same.

FREDERIC I. 1523-59.

6. Fred... Dan.

FREDERIC II. 1559-1588.

7. Frider...s. 11. D. G. Danie. Rev. Rex Norvegie Vanda. Gotor. in the centre Skillingk, Danske, 1630.

8. The same.

9. The same ; two Shillings.

CHRISTIAN IV. 1588-1648.

10. Christianus IV. D. G. Danie. Three lions running. Rev. Red. Electus. Norv. Vand. Goto. 11. Schillinck Daniske 95.

11. Christianus IV. D. G. Dan. A lion with the forelegs raised. Rev. Rex. Norv. Van. Goto 11. Shillinck Dansk, 1644.

12. 1111. Shillink Dansk. In the centre D. surmounted by a crown. R. Iustus Iudex, 1644.

13. Legend the same as the former. The bust of the King bearded and encircled by a Crown. 4 Schilling 1630.

14-45. Thirty-two two Shilling Pieces of the same devices and legends as Nos. 10-13, of the respective years, 1594, 1595, 1603, 1604 (2), 1608 (2), 1611, 1613, 1618 (3), 1624, 1625, 1626, 1627 (2), 1629, 1643, 1644 (2), 1646, 1648 (3), 1648 (3), 1645 (3). The year of three Coins not discernible.

46-50. Five 1-Shilling Pieces of the years 1614, 1624, 1625, 1644. The year of one coin not distinct.

51. Chris. 4 D. G. D. C⁴, surmounted by a crown, below 16. Rev. Monos sic. 30. A figure, standing on a globe.

FREDERIC III. 1648-70.

52. Frederic III. D. G. Dan. The armorial signs of Denmark. 1648. Rev. Rex. Nor. Van. Goto. 11. Skillinck Dansk.

53. Legend the same. 1649. A Lion raised on his hind-legs.

54. Dominus Providebit . surmounted by a crown, 1665. One Shilling Piecc.

55. Frederic 3 D. G. Daniae Rex. Bust of the King, bearded and crowned. Rev. Moneta Nova Gluckstad, XVI. E. Richs. Dal. 1665.

56-119. Sixty-four 2-Shilling Pieces with similar legends and types as those in Nos. 52-54, of the years, 1648 (2), 1649 (2), 1650 (5), 1651 (5), 1652, 1653 (2), 1654 (4), 1656 (2), 1657 (2), 1658 (2), 1659, 1660 (4), 1661 (2), 1665 (7), 1666 (5), 1667 (9), 1668 (4), 1669 (2), 1676 (3).

120-30. Eleven 1-Shilling Pieces with similar legends and types from the years 51-61, successively.

131-145. Fifteen more of the years 1661 (4), 1662 (3), 1663, 1664 (3), 1667, 1668, and two with illegible years.

145-50. Six 4-Shilling Pieces, with similar legends and types of the years 1665 (3), 1667 (2), 1669.

151. As 55. 1668.

152. Fred. 1111. Dei Grat. Head of the King with part of the bust. Rev. Dan. Nor. Von. Got. A crown 8 S. D. M. A. 1700.

153. Two F. and two 4 joined together. A Crown, above Dominus mihi adjutor.

- Rev. XII. Skilling Danske 1719. The armorial signs of Denmark. G. L. W.
 154-155. Similar to 152 of the years 1703-1704.
 156-58. Similar to 153 of the years 1721 (2), 1724.

CHRISTIAN VI. 1730-1746.

159. Two C. joined to two 6, surmounted by a crown. D. G. Rex Dan, Norv. Va.
 Go. R. 24 Skillinch. Danske. A lion standing, 1734.
 160-161. Two similar ones, 1737.
 162. Ob. the same. R. XII. Skil. Danske for de Amerca Insuler. A ship under
 weigh. 1740. C. W.
 163-64. Fr. Two 2-Shilling Pieces, 1745.
 165-66. Two 1-Shilling Pieces.

The remarks were ordered to be published in the Journal, and the thanks of the Society were voted to Dr. ROER for his communication.

The Secretary stated, that a Supplement to the Monograph on Cuckoos, lately published in the Journal, had been handed to him by Mr. BLYTH, and sent to the Printer.

The Secretary reported the following distribution of the extra copies of Captain EASTWICK'S Scinde Vocabulary, which is printed in No. 133 of the Journal; viz.

- 50 Copies presented to the Government of Bengal.
- 24 Copies presented to the Government of Bombay.
- 24 Copies presented to Captain Eastwick.
- 1 Copy presented to Major Leech.
- 24 Copies presented to the Political Secretariat of the Government of India.
- 50 Copies for sale at Bombay.
- 75 Copies for sale at Calcutta.

A letter from Messrs. GOULD, with copies of the published numbers of their splendid work, the Birds of Australia, was read, and it was voted, that the Society subscribe for a copy.

Read the following letter from Mr. BLYTH:—

H. TORRENS, ESQ. *Secretary, Asiatic Society.*

SIR,—So much extra work, (that is, in extra hours,) has been performed during the last *two months* by our Taxidermists, that I must again recommend that the Society acknowledge their assiduity by a suitable largess—20 rupees or so divided between them. Let me also warmly recommend that a proposal of Nicholas, (who appears in straitened circumstances, having an often sick wife and child to provide for,) be considered, to the effect that for a small increase of pay he would be glad to devote two or three hours more daily to his work as Taxidermist. It was promised to him on a former occasion that, if he continued to give satisfaction his salary should be further increased, and without at all wishing to disparage the services of our senior Taxidermist M. Bouchez, the inequality of remuneration between him and Nicholas is certainly at present excessive, the one receiving 50, and the other but 20 rupees monthly.

7th June, 1843.

I have the honor, to be, Sir,

Yours most respectfully,

ED. BLYTH.

Extracts from a letter from Major TROYER were read, stating that up to its date, 4th April, he had not succeeded in recovering the lost consignment of the Mahabharata from London. See Proceedings of January 1843, Vol. XII, p. 65, but that some enquiry still remained to be made.

Read the following letters :—

No. 61 of 1843.

From T. R. DAVIDSON, Esq. *Offg. Sec. to Govt. of India*, to H. PIDDINGTON, Esq. *Acting Sec. to the Asiatic Society*.

Political Department.

SIR,—I am directed by His Honor the President in Council to transmit to you, the accompanying copy of a Report by Dr. W. Jamieson, on the Geology, Zoology, &c. of the Punjab and of a part of Afghanistan.

I have the honor, to be, Sir,
Your most obedient humble servant,

Fort William, 26th April, 1843.

T. R. DAVIDSON,
Offg. Secy. to the Govt. of India.

No. 559.

From the *Sec. to Govt. of India with the Govr. General*, to H. PIDDINGTON, Esq. *Secretary Asiatic Society, Calcutta*.

Foreign Department, *Secret*.

SIR,—I am desired by the Governor General to transmit to you, a Report by Captain Graham on the resources of Shoa, with a view that if the Society deems fit, it may be published in their Journal. You will be pleased to return the document to the Officiating Secretary to Government, at the Presidency, when done with.

I have the honor, to be, Sir,
Your most obedient servant,

Agra, the 13th May, 1843.

J. THOMASON,
Secretary to the Govt. of India,
With the Governor General.

H. PIDDINGTON, Esq. *Offg. Secy. to the Asiatic Society*.

Ambala, 26th April, 1843.

SIR,—I some time ago drew out a few Notes on Moorcroft's Travels in Ladakh, and on Gerard's Account of Kunáwar, which my immediate superior, Mr. Clerk, thought sufficiently interesting to be sent to the Governor General, and which His Lordship, I have been gratified to hear, has communicated to the Asiatic Society. In some Supplementary Observations on Capt. Hutton's Tour to the Spitti Valley, I make mention of the Gangbal or Snow Fish, and as I have since had a portion of the skin of one sent to me by the Raja of Bisséhir, I have thought that I could not do better than transmit it to you, although it may be that I regard as new what is well known.

I have accordingly dispatched it to-day by Banghy to your address, and as I have not sent any letter with it, I have written in the corner of the packet the word "Gangbal" in addition to my name.

I have the honour, to be, Sir,
Your very obedient servant,

June 5th, 1843.

J. D. CUNNINGHAM.

Ramree, Arracan, 7th May, 1843.

DEAR SIR,—I obtained the enclosed Coin (I imagine) from some of the inhabitants of the Island of Chedooba, who found it with other similar ones in digging, on the sea-shore, a well. I beg to know if it is gold, and if a Coin, what country it belongs to, and of what date?

The Mugs say it is a Coin of some of the Eastern Islands, deposited on Chedooba by the wreck of some boat.

I shall feel obliged by your giving me the above information, and returning me the Coin.

Yours truly,

D. WILLIAMS.

A reply had been addressed to Captain Williams, requesting him to secure one Coin of each sort or more for the Society. The Coin is of very thin gold, and probably an Ancient Hindoo one, though of unknown type. Mr. Piddington presented an Electro-type matrix from it, which he had secured for the Society before returning the Coin to Captain Williams.

The following Memorandum of a work published by Captain Newbold was read, and a copy which had been procured for inspection was ordered to be purchased.

Published by John Murray, Albemarle Street, in 2 Vols. 8vo. with Map and Plans. Price 15 Rs.

A History of the British Settlements in the Straits of Malacca—Penang, Malacca and Singapore.

Comprising a History of the Malayan States on the Peninsula of Malacca, their Government, Religion, Trade, Political and Commercial Relations, Laws, Population, Revenue, Natural Products, Physical Aspect, Geology, &c. By James Newbold, &c. Madras Army.

N. B.—As this work was not published with any view to pecuniary profit, only copies sufficient to cover the expences of publication have been printed.

Read Report of the Curator of Museum of Economic Geology, for the month of May.

Report of the Curator Museum of Economic Geology, for the month of May.

Museum of Economic Geology.—Our active correspondent, Captain Newbold, Assistant Commissioner of Kurnool, forwards to us several specimens of Minerals, to which I shall advert in a future report. We have also received from him, six specimens of the Tobacco soils of that station, and two of the Sugar soils.

Captain Goodwyn, B. E. has at my request obliged me with another specimen of the Asphalte of Pyrimont, (see Proceedings of January) for our Mineralogical Collection, and I may mention here, that on the reverse of bricks from the ruins of Babylon, in our Museum, the bituminous cement of which is still adhering to them, I have found it to present as nearly as possible the same chemical characters!

Geological and Mineralogical Department.—At my solicitation, Mr. Howe, at Kyook Phyou, has been good enough to send us an additional box of specimens from the Mud Volcano, the eruption from which is adverted to in my report of February. Mr. Howe states that —

“The Volcano is still in a bubbling boiling state, the orifice not larger than a tea cup, and there is a” hot slimy fluid to be dipped up at the surface, but no vapour or noise is emitted, and it is otherwise quiet.”

These specimens will I hope enable us to furnish a complete set of them to several Societies, to whom I doubt not they will be objects of much interest, as they will be enabled to compare them with the products of the Mud Volcanos of South America.

Captain Boys of the 6th Light Cavalry, Assistant to the Commissioner of Kemaon, who has already obliged us with a paper on the genus *Paussus*, and promised us a selection from his geological collections, being about to proceed on a trip towards some of the Thibet Passes, I have been able to be of some little assistance to him in the way of procuring books, instruments, &c., and by permission of the Secretary I have informed him, that the Society will be happy to repay any extra expenses he may incur in taking on men and *jobboos*, for the purpose of sending *back* to the nearest inhabited spots, as he proceeds on his journey, the specimens he may collect, requesting his attention particularly to the deposits of various organic remains at great heights, the formations in which these are found, and the glacial phænomena of which so many traces, and upon such a stupendous scale, must exist in those mountains and the lower ranges. By this arrangement we trust to obtain, with a very trifling expence, not only an assortment of specimens for our Museum, but some for exchange with our friends at home; * for in India the great defect in these matters is, that amongst our

* The Curator here read the following extract of a letter received that day by dawk from Captain Boyes, as follows:—

H. PIDDINGTON, Esq.

Almorah, May 27, 1843.

Your last three notes have been duly received, and I now return you my best thanks for the kindness with which you have troubled yourself on my account. Your last note, respecting the skulls will meet with every attention I can give it, but I much fear that this proposed trip will not afford many specimens, as the natives either burn or consign them to the rapids. The route I have determined on is to go from this to Melum, across the Jowahir Pass, and if possible, return by Neetee. I have been induced to this in a great measure by your former letter, which seems to shew, that Captain Weller's Journal refers to some interesting points regarding the ammonite deposit, and I also wish more attentively to observe the country about Neetee and Mullairee. Last year when at the latter place, which is some 16 miles on this side the Pass, I obtained a few specimens of Fossil Shell, (either *Terebratulæ* or *Pecten*), which I would wish more thoroughly to investigate, as I believe it is an opinion that no Fossils occur on this side the range. The mountain behind Melum, both on its Southern, S. E. and S. W. faces, is composed of Limestone, containing myriads of the above-mentioned Fossils, but the rock is so hard (even to giving fire with the steel) and the shells so closely wedged, that a stricter search and more time than I then had (I was only one day there) is necessary to produce a worthy result. The crags forming the ridge of the mountain (called *Choping-ka-danda*), are formed of Clay Slate, which appears to have been upraised through the shelly deposit. The strata of the latter, as far as I could observe, are horizontal. I send by Dawk Bhangy the specimens I there collected, and hope that this trip will produce something more acceptable. Dr. Jameson informs me, that the specimens are all of them too small for practical purposes, which rather surprised me, as most of them are at least half a pound in weight; this fault I shall avoid in future, but having to carry them about myself, I could not well take larger specimens, which I shall now be enabled to do from the Society's assistance of the *jobboos* or coolies as may be. I should have been delighted to have gone to the Gung-tung Pass, but the distance from this precludes the possibility; there are however many interesting points in my present route, any one of which will amply repay the trouble incurred.”

few observers, with their unsettled residences and passing visits, together with the un-frequented localities of many of our remarkable Geological and Mineralogical specimens, we obtain perhaps *one* set of specimens, and it is a quarter of a century at least, before the spot is again visited by an European, who can select another set! As an instance; it is now 18 years since Captain Franklin visited the Diamond Mines of Punna in Bundlécund, and his specimens have even disappeared from our Museum. It may be 10 years more before another geologist visits the spot. A few sets of specimens from thence would be invaluable as presents at home.

The Rev. Mr. Pratt has obliged us again with a number of Geological specimens obtained at various parts on his recent voyage; many of which are valuable in themselves, or will fill up blanks in our Geological series.

I observed accidentally on passing the Kidderpore Bridge, a large lump of chalk amongst the ballast heaped by the side of the Nullah. Upon examination, this proved to be a piece of the upper chalk with flints! and as a specimen it fills up a blank in our collection. On another rock I found a number of oysters, (*Ostrea gregarea*,) which are also I think new to the Museum. It is of course impossible to ascertain the locality of these specimens, but they are always useful for reference.

I have to report in this department the dispatch of a box, containing a duplicate series (160 specimens) of Captain Pemberton's Geological Collection on his Mission into Bootan. Being a Government Collection, it may be right to place on record here, the letter addressed by me to our Secretary with the box.

H. TORRENS, Esq. *Secretary of the Asiatic Society.*

SIR,—In obedience to the desire expressed by the Honorable the Court of Directors, I beg to forward for transmission from the Geological Department of the Society, a duplicate set of Geological Specimens, 160 in number, collected on Captain Pemberton's Mission to Bootan.

2. These specimens it may be right to explain, though collected in 1837-38, were sent to the Museum in 1841, by Captain Pemberton's executor, General McLeod, B. E., and there recognised as being this series; but no catalogue or note accompanied them.

3. After much search for many months, it was discovered that the numbers referred to Capt. Pemberton's private Note Book, from which Mrs. Pemberton having copied the localities and other details, the Memorandum was sent out to the Society from England by General McLeod. Had we earlier possessed this note, no delay would have occurred in arranging and forwarding the collection.

4. A Catalogue accompanies, and a duplicate of it is enclosed in the box.

5. I beg to suggest, that a copy of this letter be forwarded with your letter of advice.

I have the honour to be, &c.

Asiatic Society's Rooms,
5th June, 1843.

H. PIDDINGTON,
Sub-Secretary of the Asiatic Society,
and Curator Museum Economic Geology of India.

The reference to the Gungtung Pass in the above is in relation to M. Jacquemont's well known mystery (or hoax) respecting some discovery to be made there. See Journal, Vol. V p. 190, which I had pointed out to Captain Boyes.—H. P.

For use in Library only

